Series 1952, No. 7

Issued October 1959

SOIL SURVEY

Maury County Tennessee

OUR SOIL ★ OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
TENNESSEE AGRICULTURAL EXPERIMENT STATION
TENNESSEE VALLEY AUTHORITY

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Maury County will serve several groups of readers. It will help farmers and livestock men plan the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; and add to the knowledge of soil scientists.

In making this survey, soil scientists walked over the fields and marshlands. They dug holes and examined surface soils and subsoils; noticed differences in growth of crops, weeds, and grasses; and, in fact, recorded all the things that they thought might affect the suitability of the soils for farming, engineering, livestock production, and related uses.

The scientists plotted the boundaries of the soils on aerial photographs. From the photographs, cartographers prepared the detailed soil maps in the back of this report on which woods, pastures, roads, creeks, and many other landmarks are shown.

Locating the soils

Use the index to map sheets to locate areas on the large map. The numbered rectangles on the index map show the parts of the county covered by each of the soil maps. Select the sheet showing that part of the county on which your farm is located. The boundaries of the soils are outlined in red, and there is a symbol for each soil. All areas marked with the same symbol are the same kind of soil, wherever they appear on the map. Suppose, for example, an area located on the map has a symbol Ae. The legend for the detailed map shows that this symbol identifies Armour silt loam, eroded gently sloping phase. This soil, and all the others mapped in the county, are described in the section Descriptions of the Soils.

Information about the soils

Special sections of this report will interest different groups of readers. The introductory part, which discusses physiography, climate, and some statistics on agriculture, will be of interest to those not familiar with the county.

Farmers and those who work with farmers can learn about the soils in the sections Relations of the Soil Series and Descriptions of the Soils. After the scientists had mapped and studied the soils, they judged what use and management each soil should have. Then they listed it in a land capability unit; that is, a group of soils that need similar management and respond in about the same way. For example, in the section on soil descriptions, Armour silt loam, eroded gently sloping phase, is placed in capability unit IIe–1. The management this soils needs, therefore, will be stated under the heading, IIe–1, in the section Descriptions of Capability Units. The farmer who has Armour silt loam, eroded gently sloping phase, on his farm may want to study table 25. This table lists some of the crops that can be grown and the yields that can be expected from Armour silt loam, eroded gently sloping phase, under two levels of management.

Farmers who need help in farm planning can consult the local representative of the Soil Conservation Service or the county agricultural agent in Maury County. Supervisors of the Maury County Soil Conservation District can arrange to get farmers the technical help needed in preparing a farm conservation plan. Members of the staff of the State agricultural experiment station will also be glad to help.

Engineers will want to refer to the section Engineering Characteristics of Soils of Maury County. The tables in this section show the engineering characteristics of soils.

Soil scientists will find information about how the soils were formed and how they are classified in the section Morphology, Genesis, and Classification of Soils.

Fieldwork for this survey was completed in 1952. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time.

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Series 1952, No. 7

Issued October 1959

SOIL SURVEY OF MAURY COUNTY, TENNESSEE [1]

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United States Department of Agriculture, Soil Conservation Service, in cooperation with Tennessee Agricultural Experiment Station and Tennessee Valley Authority

MAURY COUNTY is in the central part of Tennessee. It is somewhat rectangular in shape. The average length, east to west, is about 26 miles, and the average width, north to south, is about 22 miles. Columbia, the county seat and principal town, is southwest of Nashville and northwest of Chattanooga. Distances by air from Columbia to principal cities in the State are shown in figure 1. The land area of the county is 614 square miles, or 392,960 acres.

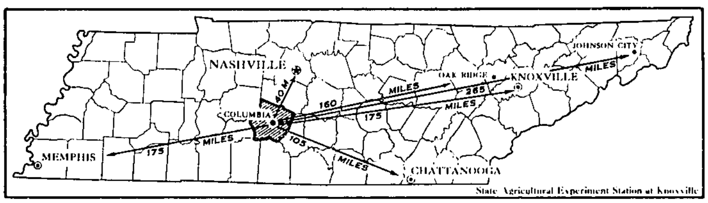

Figure 1.—**Location of Maury County in Tennessee.**

General Description of the County

This section is provided mainly for those not familiar with Maury County. It tells about the early settlement and population; physiography, relief, and drainage; climate; water supply; and public facilities and industries. Details about agriculture of the county will be found in the section Agriculture in Maury County.

Settlement and Population

Maury County was settled largely by Revolutionary War soldiers or their descendants. They mostly came from North Carolina, South Carolina, and Virginia. Maury County was formed in November 1807 from the southern part of Williamson County. Columbia, the county seat, was established in the central part of the county on the Duck River and was incorporated in 1817 (*8*)[2].

The population of the county in 1810 was 7,772, and by 1900 it had increased to 42,703. According to the United States census, the population in 1950 was 40,368. Population is fairly well distributed over the county, except in the western part, which is sparsely populated. Columbia, the principal town, had a population of 10,911 in 1950.

Physiography, Relief, and Drainage

Maury County lies within the Interior Low Plateau province. The four main physiographic divisions of the county are shown in figure 2. They are (1) the Highland Rim, (2) the outer Central Basin, (3) the inner Central Basin, and (4) the terraces and bottom lands of the Duck River Valley (*7*).

The Highland Rim is a belt of thoroughly dissected land that rises abruptly about 300 feet above the outer Central Basin. It crosses the county in a north and south direction and roughly parallels the western boundary of the county. It has hilly to steep relief. In Maury County this physiographic division consists mainly of spurs or narrow winding ridges that extend from the Highland Rim proper into the outer Central Basin area. It is sometimes called the Highland Rim escarpment. Also included in this Highland Rim escarpment area are knobs or moundlike hills that have been isolated by geologic erosion and are generally capped by the same rock found on the Highland Rim proper. Because the streams cut back into the Highland Rim, the boundary between the Central Basin and the Highland Rim is often indefinite and irregular.

In the extreme southwestern part of the county, there is a very small area within the Highland Rim known as the Highland Rim Plateau. This is a gently rolling plateau that extends into the adjoining Lawrence and Lewis Counties.

The rock formations of the Highland Rim area are bedded almost horizontally, and some are exposed on very steep slopes (*9*). They consist of cherty limestone underlain by layers of shale. The Fort Payne chert formation forms the main surface rock of the Highland Rim area. The cherty rocks are apparently more resistant to weathering than the layers of shale and are responsible for the outlying knobs in the Central Basin area as well as the steep break between the Highland Rim and the Central Basin.

The thin layers of Chattanooga and Maury shales and the lower shaly faces of the Fort Payne chert are exposed in many places. The base of the Chattanooga

[1] Fieldwork for this study was done when the division of Soil Survey was a part of the Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration. Soil Survey was transferred to the Soil Conservation Service on November 15, 1952.

[2] Italic numbers in parentheses refer to Literature Cited, p. 94.

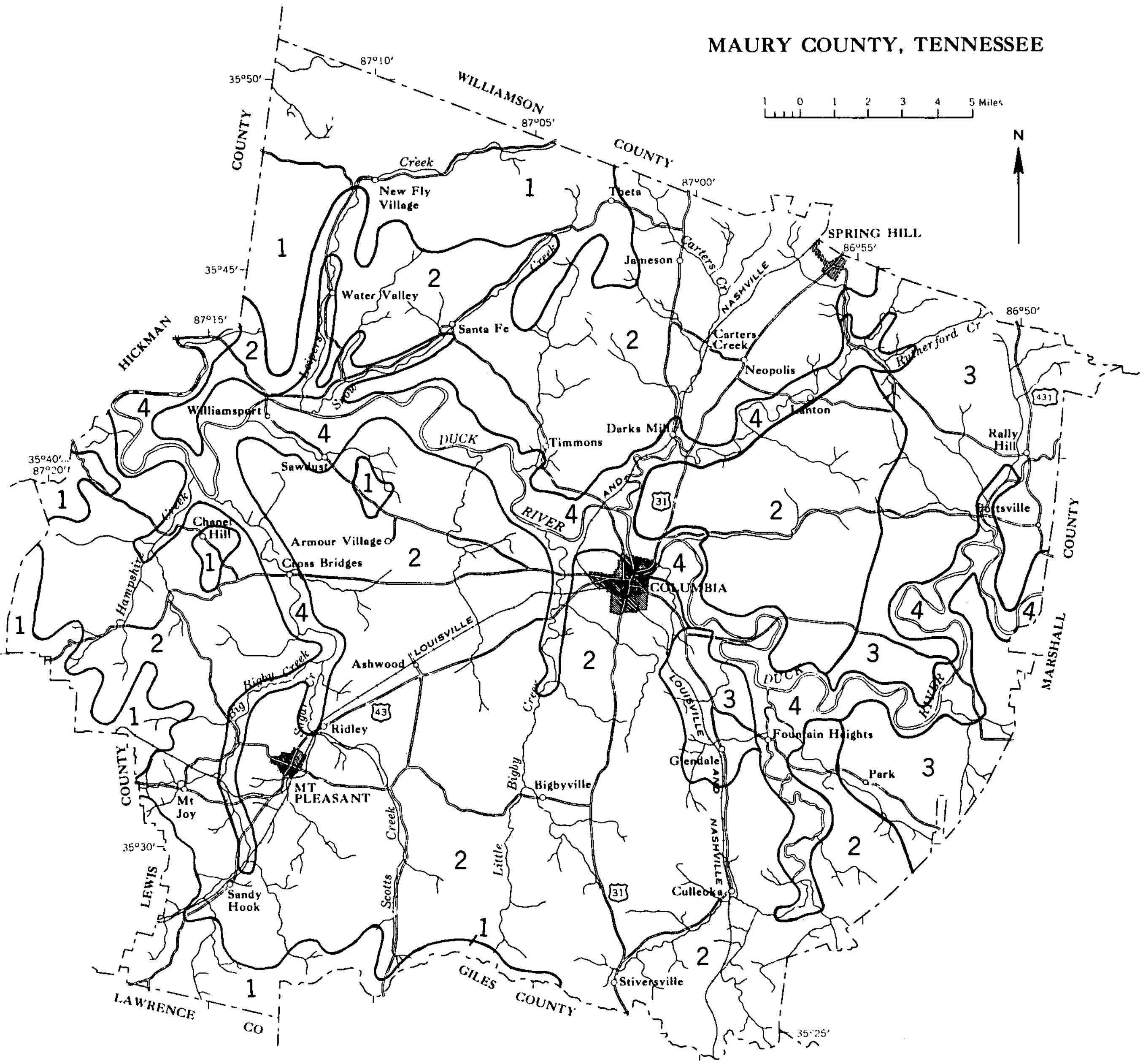

Figure 2.—**Physiographic divisions of Maury County, Tenn.: 1, Highland Rim; 2, outer Central Basin; 3, inner Central Basin; 4, terrace and bottom lands of the Duck River Valley.**

black shale is generally accepted as the separation line between the Highland Rim and the outer Central Basin.

The central and eastern parts of the county fall essentially within the Central Basin. This area is below the Highland Rim area. The Central Basin consists of the outer Central Basin and the inner Central Basin. The outer basin lies between the Highland Rim and the inner basin and at a somewhat higher altitude than the inner basin.

The rocks of the outer Central Basin are comparatively pure limestone. Many contain phosphorus. The Bigby formation in this area yields commercial phosphate in places (*9*). The Hermitage formation is the lowest in phosphatic limestone. Its base marks the line of separation between the outer and inner Central Basins.

The rocks of the inner Central Basin consist of massive and argillaceous limestones that occur in alternate layers. The argillaceous limestones are called clayey limestones because they contain thin lenses of brown shale. Nearly flat rocky areas with very little soil occur throughout the inner Central Basin and are commonly called glades. Limestone sinks are also found in this area. They vary considerably in depth and size. Some are very wide and

contain soils. Others have only exposed rocks. Many of the soils are moderately shallow to bedrock as a result of the physiographic history of the inner Central Basin.

The bottom lands and terraces occur along the Duck River and the tributary creeks and streams throughout the county. The high stream terraces are above the present stream overflow and have gently sloping to moderately steep relief. Most areas of the bottom lands and the low stream terraces are in the meanders of the streams. The bottom lands occupy a belt of nearly level land adjacent to the Duck River and creek channels. They are flooded from time to time. The low stream terraces have undulating to rolling relief. They occupy smooth strips above the bottom lands.

The relief of the county ranges from nearly level to steep. Elevations range from about 550 to 1,000 feet above sea level. The general elevation above sea level of the Central Basin area of the county is about 750 feet, and that of the Highland Rim area is about 950 feet.

The county lies wholly within the watershed of the Tennessee River. The Duck River and its tributaries drain all the county except a small area in the extreme southwestern part that is drained by the headwaters of the Buffalo River. The Duck River enters the county from the east and flows westward through the middle of the county and onward to the Tennessee River. Large creeks flow into the Duck River from the northern and southern parts of the county. They form a well-defined dendritic drainage pattern. Almost all areas of the county are reached by one or more creeks, branches, and drainageways.

Climate

The climate of Maury County is humid and temperate. The winters are moderate, but there are occasional short spells of cold weather. Summers are warm, but temperatures of 100° F. are not frequent. The differences in temperature between seasons are not extreme. Between summer and winter, the difference in average temperature is about 35° F. Temperature and precipitation data compiled from United States Weather Bureau records are given in table 1.

The rainfall is fairly well distributed, but in summer and fall, there are generally short periods of drought. During these dry periods, the yields of crops and growth of plants are reduced.

Excessively wet periods often delay planting and sometimes cause partial crop failures, especially on the poorly drained soils. Snow usually falls in small amounts and lasts only a few days. Winter cover crops get little protection from snow, but large acreages are grown with little damage from cold weather. Local hailstorms accompanied by strong winds sometimes cause considerable damage to tobacco and corn crops.

The average frost-free season of 192 days extends from April 12 to October 21. Killing frosts have been recorded as late as April 27 and as early as October 1. The growing season is long enough for the crops commonly grown in the county.

TABLE 1.—*Temperature and precipitation at Ashwood, Maury County, Tenn.*

[Elevation, 725 feet]

Month	Temperature[1]			Precipitation[2]			
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1901)	Wettest year (1950)	Average snowfall
	°F.	°F.	°F.	Inches	Inches	Inches	Inches
December	42.3	76	0	4.59	3.87	2.76	1.4
January	40.8	77	−17	5.14	3.97	16.14	3.3
February	43.1	78	−11	4.90	1.99	8.85	1.7
Winter	42.1	78	−17	14.63	9.83	27.75	6.4
March	50.2	84	7	5.88	1.66	6.35	1.1
April	59.3	89	15	4.17	4.50	1.51	(3)
May	66.8	95	33	4.37	1.60	3.80	0
Spring	58.8	95	7	14.42	7.76	11.66	1.1
June	75.3	105	43	3.71	2.30	4.50	0
July	78.1	106	47	3.80	2.00	3.30	0
August	76.8	102	44	4.00	5.15	8.17	0
Summer	76.7	106	43	11.51	9.45	15.97	0
September	71.8	101	32	3.17	3.57	3.70	0
October	60.9	93	20	2.89	.95	.57	(3)
November	49.5	83	−4	4.00	.87	7.37	.4
Fall	60.7	101	−4	10.06	5.39	11.64	.4
Year	59.6	106	−17	50.62	32.43	67.02	7.9

[1] Average temperature based on a 83-year record, through 1955; highest temperature on a 21-year record, and lowest temperature on a 22-year record, through 1952.
[2] Average precipitation based on a 82-year record, through 1954; wettest and driest years based on a 82-year record, in the period 1873-1954; snowfall based on a 21-year record, through 1952.
[3] Trace.

Water Supply

The sources of water differ in the various physiographic sections of the county. Springs are abundant in the valleys of the Highland Rim when their floors are below the Chattanooga shale. In this area practically all the water for domestic and livestock use comes from springs.

Springs are common in the outer Central Basin, and dug wells are used as an additional source of water. Livestock obtains water mainly from streams and ponds.

In the inner Central Basin, both springs and permanent streams are scarce. Water for domestic use is obtained from dug wells and cisterns. Livestock on farms gets water mainly from ponds, but in long dry periods, water has to be obtained from other sources.

The Duck River and the larger tributary creeks that head in the Highland Rim are the only permanent streams in the county. Other streams usually stop flowing in dry seasons. The depressions in some stream beds may contain water in dry periods. Water

for the city of Columbia is obtained from the Duck River.

Public Facilities and Industries

Maury County is well served by railroads and by Federal, State, and county roads. The 1950 census shows that 65 percent of the farms are located on paved or graveled roads. The location and extent of county roads are shown on the soil map at the end of the soil survey report.

The principal industries and markets of the county are centered chiefly around Columbia and Mount Pleasant. Farm products can be sold at grain mills, dairies, and markets for tobacco and livestock. The largest industries are those that mine and process the deposits of natural phosphate. Much agricultural limestone is obtained from quarries in the county. Lumbering is also an industry in Maury County.

Agricultural research is conducted by the Middle Tennessee Agricultural Experiment Station located north of Columbia.

Churches and schools are conveniently located and are available for agricultural meetings and gatherings.

Agriculture in Maury County

Agriculture is the main industry in Maury County. The county is classed as a general farm-tobacco area. Most of the farms are of the general farming type and are operated by their owners.

Land Use and Size of Farms

The distribution of soils generally determines the agricultural practices in the county. On the gentle slopes of the Central Basin, various kinds of crops are grown. In the Highland Rim area, corn and lespedeza hay are the main crops.

There has been some adjustment in the use of soils according to their capability, but many farmers still do not recognize that some soils are suitable only for certain crops. Practices for the control of runoff are not generally used, except that more of the close-growing crops are planted on steeper slopes.

In the past few years, there has been a significant decrease in the acreage used for crops. United States census figures show that a large acreage of cropland has reverted to woodland or pasture, and that yields of crops are higher from the land remaining in cultivation. Erosion has lowered the fertility of many soils and made their cultivation more difficult.

According to the 1954 census, there were 3,010 farms in Maury County. The average size of farms was 115.1 acres. Land in farms totaled 346,560 acres and was used as follows:

Land use:	*Acres*
Cropland total	180,771
Cropland harvested	91,292
Cropland used only for pasture	76,508
Cropland not harvested or pastured	12,971
Woodland total	102,239
Woodland pastured	72,200
Woodland not pastured	30,039
Other land pastured	43,627
All other land	19,923

The smaller farms and those having a large acreage in woodland are mostly in the Highland Rim. Woodland was reported on 1,988 farms. The more improved, average-size farms are in the Central Basin. The largest acreage of the more productive soils is in the outer Central Basin, where land values are considerably higher than elsewhere in the county.

Farms were classified according to type in the 1954 census as follows:

Type of farm:	*Number*
Field-crop	491
Dairy	682
Livestock	435
Poultry	15
Vegetable	5
General	283
Miscellaneous and unclassified	1,091

Miscellaneous and unclassified farms include part-time and residential farms. Since many industrial employees live in the rural areas of the county, the number of farms in this category is fairly large.

Farm Tenure

The number of farms operated by owners has steadily increased. The 1954 census reports that 70.3 percent of the farms in the county are operated by owners and 29.3 percent are operated by tenants. Few farms have ever been operated by managers. Most renters are classed as share-cash tenants. Under this rental system, the tenant furnishes all labor and pays as rent a share of the crops, or of the livestock, or of both. About 35 percent of the farms used tractors in 1954.

Farm Crops

The main crops in Maury County are corn, wheat, burley tobacco, and legume hay. Burley tobacco is the principal cash crop. The acreages of the principal crops, as reported by the United States Census, are shown in table 2.

TABLE 2.—*Acreages of principal crops in Maury County, Tenn., in stated years*

Crop	1939	1949	1954
	Acres	*Acres*	*Acres*
Corn	49,953	33,215	25,279
Small grains threshed or cut and fed unthreshed	18,864	23,725	27,565
Hay crops, total	42,256	31,611	25,646
Tobacco harvested	3,639	3,607	3,238

Corn

Corn is grown on nearly every farm in the county, and it is generally used as livestock feed. The largest acreage is grown in the Central Basin. The bottom lands are used mainly for corn year after year. In 1954, the average yield of corn in Maury County was about 33 bushels per acre.

Small grains

Wheat, oats, rye, and barley are widely grown, and some acreage is used as supplemental pasture before the crops are combined or threshed. Wheat is the main small grain and is generally sold on local markets; oats and barley are usually fed to livestock on the farm. In 1954, wheat in the county averaged 17 bushels per acre, and barley 19 bushels. Maury is among the leading counties in Tennessee in the number of acres harvested of wheat, barley, and rye.

Hay

Alfalfa and lespedeza hay are produced throughout the county. Some lespedeza and crimson clover seed is harvested. Practically all the tillable soils are used for hay at times. Maury County ranks fairly high in acres of hay cut.

Tobacco

Tobacco is the chief cash crop and usually is planted on the more productive soils. The acreage used for it has been gradually reduced. However, the county yield of tobacco greatly increased from 1939 to 1949 through the use of fertilizers and high-producing varieties. Yields declined from 1949 to 1954. Many educational demonstrations conducted for tobacco producers have helped improve the quality of the crop. In 1954, Maury County ranked fifth in the State in the acres of tobacco harvested, and it produced an average yield of 975 pounds per acre.

Minor crops

Soybeans and cowpeas are grown in the county as minor leguminous hay and pasture crops. They are generally interplanted with corn and hogged off or are sown for hay after the harvest of small grains.

Vegetables and fruits are grown chiefly for home use. A few farms have small commercial orchards that supplement the income from other types of farming.

Pasture

Permanent pastures occupy some acreage on practically all farms. This is necessary because of the large number of beef and dairy cattle in the county. Although better attention is being given to management, permanent pastures are usually restricted to soils that are shallow, severely eroded, stony, or strongly sloping and hilly. Many pastures consist predominantly of lespedeza; others consist of orchardgrass and Ladino clover or of fescue and Ladino clover.

Livestock and Livestock Products

Livestock and dairy farming are important sources of farm income. The main kinds of livestock on farms are cattle, hogs, and sheep. According to the 1954 census, Maury County is among the leading counties in the production of cattle, milk cows, hogs, and sheep. The number of livestock on farms in Maury County, Tenn., is shown in table 3.

TABLE 3.—*Number of livestock on farms in Maury County, Tenn., in stated years*

Livestock	1940	1950	1954
	Number	*Number*	*Number*
Cattle and calves	[1] 30,243	41,582	42,191
Hogs and pigs	[2] 24,954	30,776	24,220
Sheep and lambs	[3] 23,459	23,522	19,516
Mules and mule colts	[1] 5,416	4,397	2,880
Horses and colts	[1] 3,869	2,942	1,465
Chickens	[2] 155,596	[2] 129,487	[2] 137,330

[1] Over 3 months old.
[2] Over 4 months old.
[3] Over 6 months old.

Although many farms specialize in dairying, most of the farms produce some dairy products in connection with other types of farming.

Livestock are well distributed over the county. In the Highland Rim, there are more beef cattle, hogs, and work animals than other kinds of livestock.

Soil Survey Methods and Definitions

The scientist who makes a soil survey examines soils in the field, classifies the soils in accordance with facts that he observes, and maps their boundaries on an aerial photograph or other map.

FIELD STUDY.—The soil surveyor bores or digs many holes to see what the soils are like. The holes are not spaced in a regular pattern but are located according to the lay of the land. Usually they are not more than a quarter of a mile apart, and sometimes they are much closer. In most soils such a boring or hole reveals several distinct layers, called horizons, which collectively are known as the soil profile. Each layer is studied to see how it differs from others in the profile and to learn the things about this soil that affect its capacity to support plant growth.

Color is usually related to the amount of organic matter. The darker the surface soils, as a rule, the more organic matter they contain. Red and yellow colors in the subsoil are mostly due to iron oxide in the soil. Red indicates the soil is well drained, and yellow indicates that it is moderately well drained. Streaks and spots of gray, yellow, and brown in the lower layers generally indicate poor drainage and poor aeration.

Texture, or the content of sand, silt, and clay, is determined by the way the soil feels when rubbed between the fingers. It is later checked by laboratory analyses. Texture determines how well the soil retains moisture, plant nutrients, and fertilizer, and whether it is easy or difficult to cultivate. A coarse-textured soil is one high in content of sand; a fine-textured one has a large proportion of clay.

Structure, which is the way the individual soil particles are arranged in larger grains and the amount of pore space between grains, gives us clues to the ease or difficulty with which the soil is penetrated by plant roots and by moisture. For example, "moderate

medium subangular blocky" means moderately distinct, medium-sized aggregates of subangular blocky shape.

Consistence, or the tendency of the soil to crumble or to stick together, indicates whether it is easy or difficult to keep the soil open and porous under cultivation.

Drainage refers to the movement of water from the soil by surface runoff and by internal drainage through the soil profile to underground spaces. Drainage is a characteristic of the soil that indicates the frequency and duration of periods when the soil is free of saturation or partial saturation. The general drainage class of a soil is determined by characteristics of the soil profile and levels of the water table. Very poorly drained soils are those from which water is removed so slowly that the water table remains at or on the surface the greater part of the time. Excessively drained soils are those from which water is removed very rapidly. Enough precipitation is commonly lost to make them unsuitable for ordinary crop production. Well-drained soils commonly hold proper amounts of moisture for plant growth after rains and are considered to have good drainage.

Slope refers to the lay of the land or the surface incline of a soil area. Steepness, shape, and pattern of the slope affect flow of runoff and use of the land. Steepness is often expressed in percentage, which is the number of feet of fall in 100 feet of horizontal distance.

Erosion.—The terms used in this report to describe more than the normal amount of water erosion are *eroded* and *severely eroded*. Erosion symbols are used on the soil maps to indicate small acreages that have a different degree of erosion from that of the delineated areas in which they occur. The terms used to express degree of erosion do not indicate the erosion hazard of a soil, as this must be determined by studying the slope and characteristics of the soil profile. Consequently, a soil that is not eroded may have a high erosion hazard if it is cleared and cultivated.

Chemical reaction of a soil and its content of lime and plant nutrients are determined by field tests and laboratory analyses. The reaction of a soil is its degree of acidity or alkalinity expressed mathematically as the pH value. A pH value of 7 indicates precise neutrality; higher values, alkalinity; and lower values, acidity. An alkaline soil in this county is generally said to be rich in lime, and an acid, or sour, soil is low in lime. Terms referring to ranges in pH that are commonly used in this report are as follows:

	pH		*pH*
Extremely acid	Below 4.5	Moderately alkaline	7.9–8.4
Very strongly acid	4.5–5.0	Strongly alkaline	8.5–9.0
Strongly acid	5.1–5.5	Very strongly alkaline	9.1 and higher
Medium acid	5.6–6.0		
Slightly acid	6.1–6.5		
Neutral	6.6–7.3		
Mildly alkaline	7.4–7.8		

Parent material is the unconsolidated mass that weathered from various kinds of rocks from which soil develops. It includes the C horizon and other materials above the C horizon from which the soil has developed. The parent material of many soils is located over the parent rock from which it has weathered. Other soils are developed wholly or partly from weathered material that has been moved from one place and deposited in another. Parent material is classified as follows:

Residual: Weathered material that has formed in place.
Alluvium: Weathered material that has been transported mainly by water.
Colluvium: Weathered material moved by gravity, frost action, and local wash.
Loess: Silty material moved and redeposited by the wind.

Other characteristics observed in the field study and considered in classifying the soil include the following: The depth of the soil over bedrock or compact layers and presence of gravel or stones in amounts that will interfere with cultivation.

CLASSIFICATION.—In the lower categories of classification, soils are placed in series, types, phases, miscellaneous land types, and undifferentiated groups.

Soil type.—Soils having the same texture in the surface layer and similar in kind, thickness, and arrangement of soil layers are classified as one soil type. It is the basic unit of classification and may consist of several phases.

Soil phase.—Because of differences other than those of kind, thickness, and arrangement of layers, some soil types are divided into two or more phases. Slope variations, frequency of rock outcrops, degree of erosion, depth of soil over the substratum, or natural drainage are examples of characteristics that suggest dividing a soil type into phases.

The soil phase (or the soil type if it has not been subdivided) is the unit shown on the soil map. It is the unit that has the narrowest range of characteristics. Use and management practices, therefore, can be specified more easily than for soil series or yet broader groups that contain more variation.

Soil series.—Two or more soil types that differ in surface texture, but are otherwise similar in kind, thickness, and arrangement of soil layers, are normally designated as a soil series. In a given area, however, it frequently happens that a soil series is represented by only one soil type. Each series is named for a place near which it was first mapped.

As an example of soil classification, consider the Maury series of Maury County. This series is made up of two soil types, subdivided into phases, as follows:

Series	*Type*	*Phase*
Maury	Silt loam	Eroded gently sloping phase
		Eroded gently sloping coarse phase
		Eroded sloping coarse phase
	Silty clay loam	Eroded sloping phase
		Severely eroded sloping coarse phase

Miscellaneous land types.—Bare rocky mountainsides, gullied land, and other areas that have little true soil are not classified into types and series, but they are identified by descriptive names, such as Rockland, Mimosa and Inman materials, sloping.

Undifferentiated soil groups consist of two or more soils, generally having several similarities in their characteristics, that are mapped together because of the difficulty of distinguishing the areas of the separate soils. Dunning and Lindside silty clay loams is an undifferentiated soil group.

Soils of Maury County

This section contains a discussion of the soil associations, the relations of the soil series, and the descriptions of all soils mapped in this county.

Soil Associations

Soils that occur together in a characteristic pattern make up a soil association. An association may consist of only a few or of many soils. The soils may be similar or may differ greatly from each other.

Close association of the soils geographically does not mean that all the soils in an association are similar in their characteristics or in their suitability for agricultural use. Many farms in any one soil association area, however, have similar soil management problems. These problems are not always identical, because the farm units within the association area contain different acreages and patterns of the soil series in the association area. Farmers in one soil association area generally have soil problems different from those in another soil association area.

There are nine soil associations in Maury County. Two lie in the Highland Rim physiographic division, three in the outer Central Basin physiographic division, two in the inner Central Basin physiographic division, and two in the terraces and bottom lands of the Duck River Valley physiographic division. A generalized map of the nine soil associations is shown in color in the back of the report.

On the following pages is a brief description of each area shown on the soil association map. The dominant soil series and miscellaneous land types of the area make up the names of the soil association. The soils are listed in order of extent. Soil series other than those named in the association are found within each area, but they make up only a minor part.

Mountview-Dickson association

The soils of this association are low in lime and most plant nutrients, but they respond well to applications of lime and fertilizer. They comprise a small area on gently sloping broader ridgetops that are the remnants of the dissected Highland Rim plateau. The relative positions of the soils in this association are shown in figure 3.

The main areas of this association are on the ridgetops of the high uplands in the northwestern and southwestern parts of the county. The soils have developed in a thin mantle of loesslike silt that lies over cherty limestone.

The well-drained Mountview soils are the most extensive in this association and are on the narrower or more sloping ridgetops. The Dickson soils occupy the smoother, broader ridges. They are moderately well drained and have a fragipan below the subsoil. The well drained Greendale soils and the moderately well drained, local alluvium phase of Lindside silt loam occur along streams in this association but are widely scattered and small in extent. These soils have developed from material washed from nearby soils. They are usually cropped along with the surrounding uplands, but crop yields are somewhat higher on these soils than on the upland soils.

Most of this association consists of soils of capability classes II and III. There is a small total acreage of soils of class IV. The soils in the Mountview-Dickson association are moderate to low in natural fertility; but they are well situated and are easily worked. If properly managed, they are suited to most crops commonly grown in the county.

Most of this association has been cleared and is used for farming. General farming prevails, and some livestock and livestock products, as well as crops, are produced for sale and for home consumption. The chief crops are corn, lespedeza, and redtop.

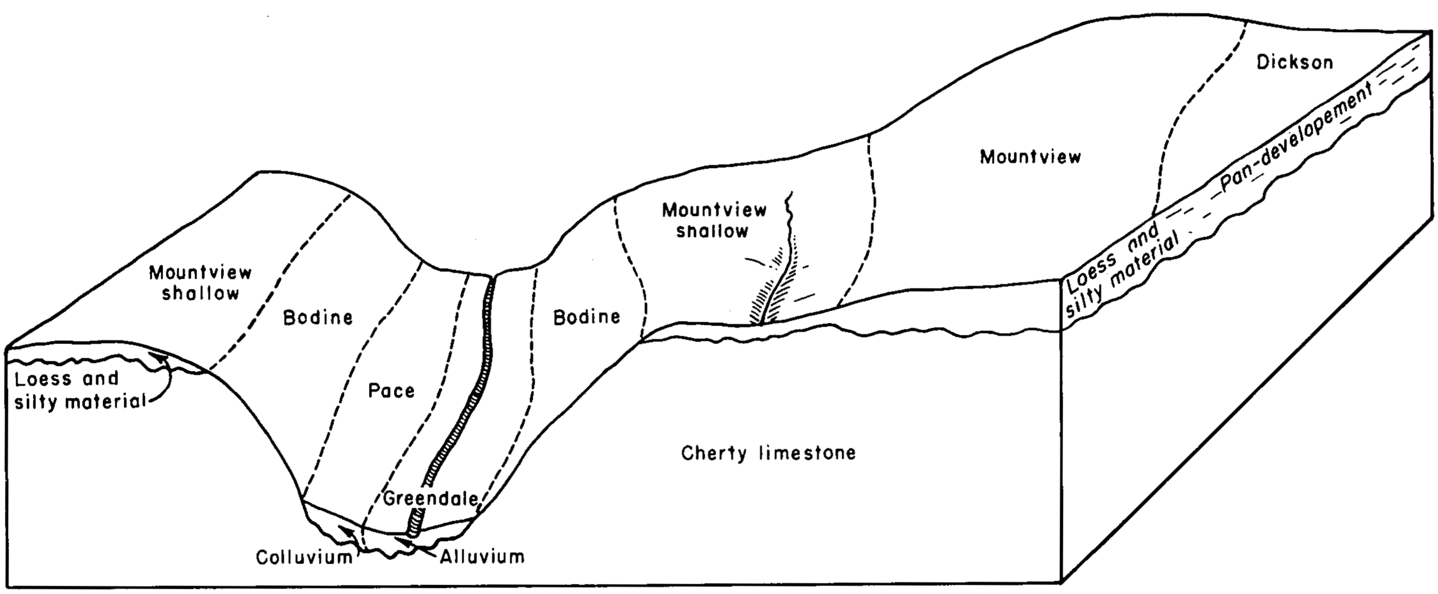

Figure 3.—Sketch showing relative positions of soils in the Mountview-Dickson and the Bodine-Mountview (shallow phases)-Pace associations.

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Fairly good pasture is produced. Because of their gentle slopes, most of the soils are easy to conserve and can be used in moderately short crop rotations. The association is surrounded by highly dissected uplands that are poorly suited to crops or pasture. Consequently, the area of cropland and pastureland on many of the farm units is small.

Bodine-Mountview (shallow phases)-Pace association

The soils of this association are low in natural fertility and moisture-supplying capacity. They occupy narrow, winding ridges and steep-walled, V-shaped valleys of the Highland Rim. The relative positions of the soils in this association are shown in figure 3.

This association occurs as a rather broad, intermittent, north-south belt in the western part of the county. This is the most extensive dissected part of the Highland Rim. All the soils of the association have various amounts of chert scattered over the surface and throughout the profile. The soils on the steeper slopes generally contain more chert than those on the lesser slopes. Many areas contain chert fragments in amounts that interfere seriously with cultivation.

The Bodine soils make up the greater part of this association. They occupy the steep slopes and very narrow ridges. They are shallow soils that have developed from cherty limestone materials. Their surface soils and subsoils are light colored. The Bodine soils are very cherty and for the most part are not suited to crop production. Many areas are still in forest, but some are cultivated or used for pasture.

Shallow phases of the Mountview soils are generally on the narrow ridgetops above the Bodine soils (fig. 4). They have formed from a thin mantle of silty material over cherty limestone. These Mountview soils are deeper to cherty limestone material than the Bodine soils and have darker, more yellowish-brown silty surface and subsoil layers. Chert fragments are in the subsoil and may also be sparsely scattered over the surface. These soils are cropped if they adjoin more productive soils, but many areas are not farmed, because they are isolated by the steep Bodine soils. These areas are largely in forest or are idle.

Figure 4.—**Recently cleared ridge in the Highland Rim. Mountview shallow phase soils are on top of ridge; Bodine cherty soils on strong steep slopes; Pace soils along drainageways.**

The Pace soils occupy small areas at the base of slopes along narrow draws. They have formed from cherty material washed from the Bodine and Mountview soils. They are cherty, light colored, and acid. Where properly managed, they are moderately productive.

Blackjack oak hardwoods and upland hardwoods occupy this rather broad area of the Highland Rim. The stand includes white, pignut, and scalybark hickories; black, blackjack, white, chestnut, and scarlet oaks; blackgum; dead chestnut; red maple; and sourwood. Chestnut, black, and scarlet oaks grow on the summits of the sharper ridges. Below the summit, scarlet oak is associated with white oak, pignut hickory, blackgum, sassafras, and dogwood. Near the bottom of the slopes in moister areas, a few tuliptrees occur. White oaks, some scarlet and black oaks, and occasional post oaks grow on broader, more level tops of some of the ridges. Blackjack oak and sourwood are generally on the more cherty soils.

Most of this association consists of soils of classes VI and VII. There is a small acreage of soils of classes III and IV soils on the toe slopes and ridgetops. Farming is mainly of a subsistence type. Pastures on these soils are generally poor, but under good management, fairly good pastures can be established.

Dellrose-Frankstown-Mimosa (cherty) association

Most of the soils of this association have moderate to rapid internal and external drainage; however, the lower subsoil of the Mimosa soils contain more clay and are slowly permeable. They are medium to high in phosphorus, and medium to low in other plant nutrients. All of the soils are acid. They occupy cherty knobs, steep slopes, and narrow cherty valleys of the outer Central Basin that lead down into its more level parts. The relative positions of the soils in this association are shown in figure 5.

The areas of this association are broad and occur extensively throughout the western and southern parts of the county. The soils have developed mainly from weathered, phosphatic, high-grade to clayey limestone and shale mixed with cherty soil material that has rolled down from higher positions. Because of their position on the landscape, the soils are difficult to work. The high content of chert fragments also interferes with cultivation.

Dellrose soils are the most extensive and occupy the sloping to steep cherty hillsides that lead down into the valleys. They are below the closely associated Frankstown soils and the Bodine soils of the Highland Rim. The Dellrose soils were formed mainly from cherty soil material that has rolled down from the higher lying soils. The surface and subsoil layers are brown and contain numerous chert fragments. Most areas are high in phosphorus, which is supplied by seepage waters from underlying rocks.

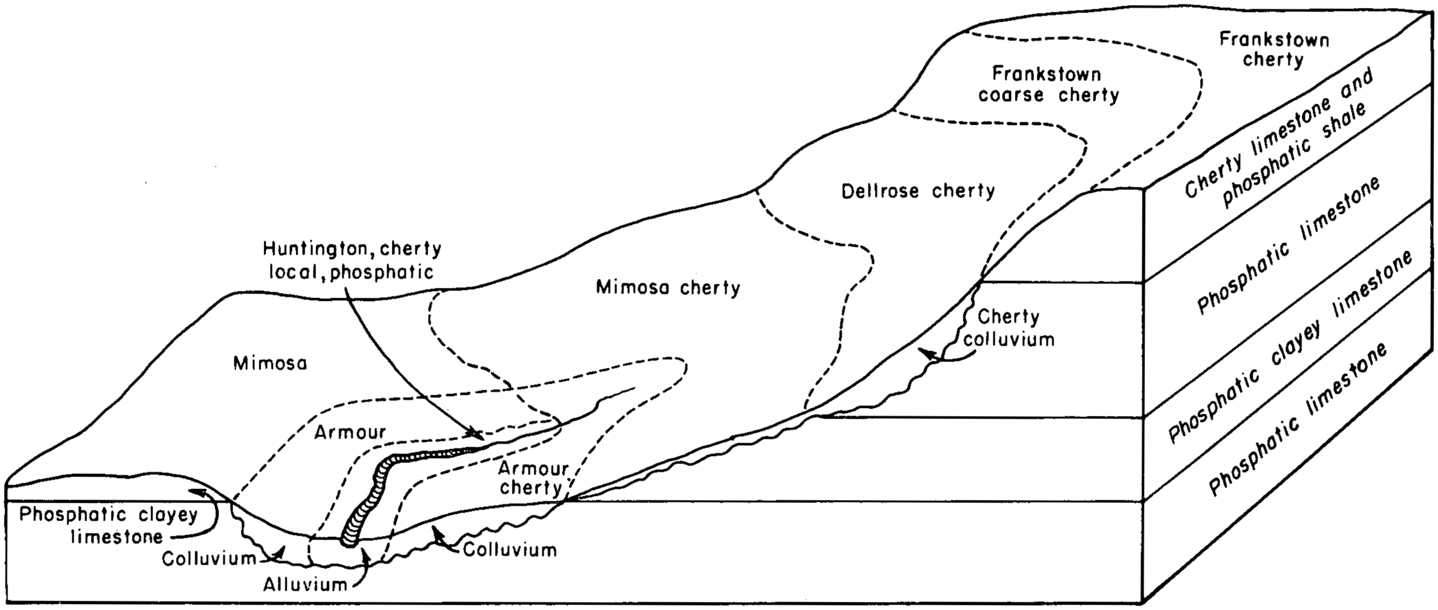

Figure 5.—**Sketch showing relative positions of soils in the Dellrose-Frankstown-Mimosa (cherty) association.**

Frankstown soils occupy the tops and the short, steep slopes of the higher ridges and knobs (fig. 6). They are generally above the Dellrose soils. They are underlain by cherty limestone and phosphatic shale. Their surface soils are gray to brown, and their subsoils are strong brown. The Frankstown soils are very cherty throughout the profile, especially on the steeper slopes.

Cherty Mimosa soils generally occupy lower slopes of the cherty hillsides and frequently occur with the Dellrose soils. The brown surface layer of these soils consists mainly of cherty material that has rolled from higher lying soils. The heavy yellow subsoil developed from materials that weathered from phosphatic clayey limestone. The Mimosa soils are very erosive. Gullies occur in many areas.

Figure 6.—**Frankstown soils on high slopes in background and Dellrose and Mimosa soils farther down the steep slopes. Ashwood soils and Rockland on mixed hardwood and cedar slopes at left. Cherty Armour soils in the foreground. Cherty Huntington, local alluvium phosphatic phase, along drainageways.**

The cherty Armour soils occur around the base of the cherty hillsides and in the head of the valley draws. They have developed from cherty soil material that has moved down the slopes from the higher lying Frankstown, Dellrose, and Mimosa soils. They have brown surface soils and subsoils. The Armour soils are moderate to high in natural fertility and are important farming soils in this area.

Huntington cherty silt loam, local alluvium phosphatic phase, occurs along the narrow drainageways in the same area with the cherty Armour soils. This soil is more productive than the Armour soils but is not extensive.

Ashwood soils are closely associated with the Mimosa soils but cover a small acreage. Like the Mimosa soils, they have developed from phosphatic clayey limestone, but they are shallower to bedrock than the Mimosa and have darker surface soils and heavier subsoils.

Upland hardwoods are extensive in this outer Central Basin area on Frankstown, Dellrose, Mimosa, and Armour soils. Trees growing on these soils include Shumard red oak, white oak, green ash, chinquapin, oak, beech, sugar maple, hackberry, persimmon, redbud, black locust, and ironwood (*Ostrya virginiana*). Ash, yellow-poplar, white elm, black walnut, and persimmon grow where this association merges into the high-phosphate area where the Maury and Braxton soils are associated.

A limited oak-chestnut forest occupies the ridges, hills, and knolls along the Highland Rim escarpment near Stiversville. It is mainly on the south and west exposures and merges with the upland-hardwood forest on the slopes facing north and east. This forest is generally found on the Frankstown cherty silt loam soils of the ridgetops and on the steep phases of the Dellrose soils. The chestnut trees have been killed by the chestnut bark disease, but dead trees and stumps

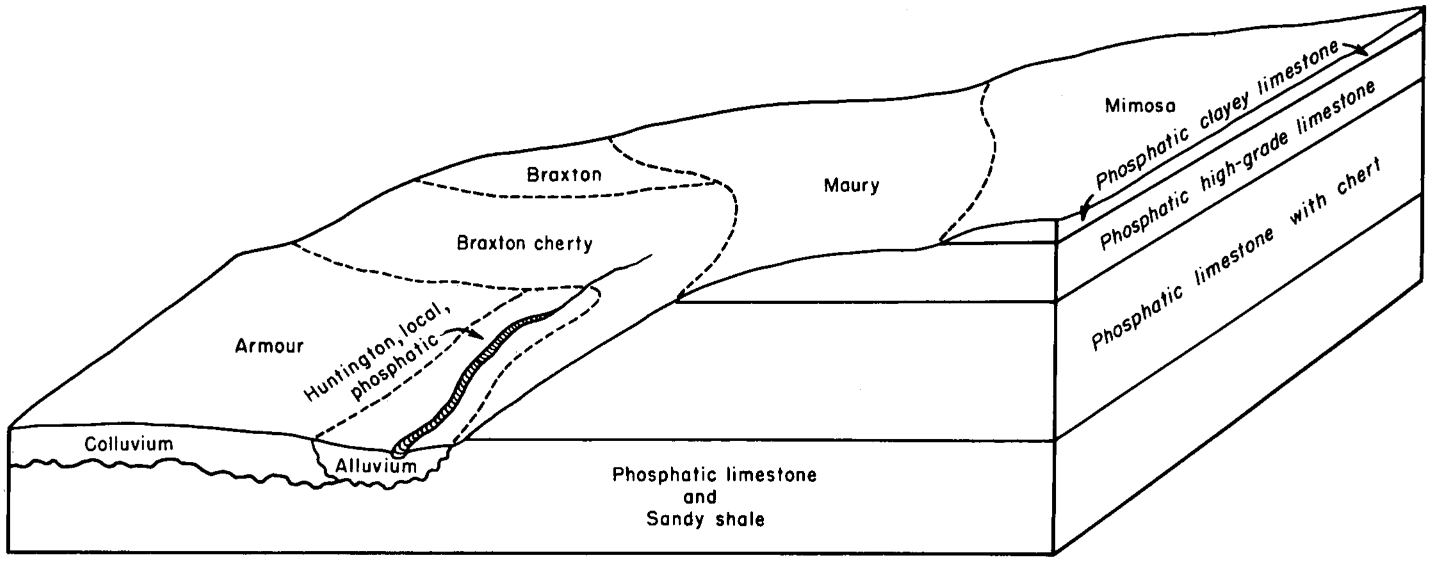

Figure 7.—**Sketch showing relative positions of soils in the Braxton-Maury-Armour association.**

remain. Chestnut sprouts show various degrees of infection from fruiting spores of this disease.

Most of the Dellrose-Frankstown-Mimosa (cherty) association consists of soils of capability classes IV and VI. There is a limited acreage of soils of classes III and VII. This association is characterized by an intricate pattern of long, somewhat broader areas of class VI soils. The distribution is such that average-sized fields usually include a large proportion of class VI soils. Soils fairly well suited to cultivation are generally in long, narrow areas on ridge crests or in narrow valleys. The steeper slopes to the ridges are not well suited to crops but produce good pastures. The soils of this association can be tilled throughout a relatively wide range of moisture conditions.

Braxton-Maury-Armour association

This association consists of deep, well-drained, productive soils. It contains the larger areas of the most desirable upland soils of the county. The soils of this association are high in phosphorus. They are moderate to high in organic matter and plant nutrients, where not severely eroded. They are easily worked. Moisture absorption and moisture relations for plant roots are good, except on severely eroded or moderately steep areas. These soils are within the outer Central Basin. The relative positions of the soils in this association are shown in figure 7.

This association occupies almost all of the central part of the county. The soils are gently sloping to rolling, but there are some strongly sloping areas along the major drainageways. The underlying rocks consist of high-grade to clayey limestone that contains large amounts of phosphorus. Many parts of this area have been commercially mined for phosphate, particularly those near Mount Pleasant and Columbia.

Maury soils generally occur on the broad, smooth, gentle slopes of this area (fig. 8). They have a dark-brown surface soil and a deep, reddish-yellow subsoil. They are used intensively for crops.

Braxton soils occupy positions in the landscape similar to those occupied by the Maury soils, but in many places they have stronger slopes. They have developed from underlying limestone that generally contains some chert. The Braxton soils differ from the Maury soils mainly in having thinner soil layers and a heavier subsoil and in containing some fine chert fragments. In most places, their subsoil layers are moderately cherty, and chert fragments are scattered over the surface of eroded areas. The Braxton soils are not so productive as the Maury soils and are more erosive.

Armour soils are at the foot of slopes bordering upland soils of the Mimosa, Maury, and Braxton series. They consist of soil materials that have

Figure 8.—**Stripcropping on the sloping Maury soils in the Central Basin. Slopes of the Highland Rim are in background.**

washed or rolled from the slopes of these nearby soils. They have brown surface soils and subsoils.

Mimosa soils occur on gently sloping to rolling areas that are somewhat higher than the other soils of this association. They have formed from high-grade to clayey limestone that contains phosphorus. The Mimosa soils have brown surface layers except in eroded areas. In these areas a yellow, heavy clay subsoil forms the plow layer.

The local alluvium phosphatic phase of Huntington silt loam is along the small drainageways. It consists of material washed from the surrounding soils. This Huntington soil has a dark-brown to brown surface soil and subsoil. It is suited to the production of most crops and is generally farmed with the major soils in the field because of its small area.

Lindside silt loam, local alluvium phosphatic phase, occurs along the small drainageways in this area and is similar to the Huntington soils. It is less well drained, however, and is not suited to so wide a variety of crops.

Also along the small drainageways and in depressions in association with Huntington and Lindside soils are Godwin and Burgin soils. These soils are easily distinguished by their dark-gray to black surface soils. The Godwin soil is moderately well drained in most places, high in phosphorus, and neutral to slightly acid. The Burgin soils are poorly drained and have a heavy subsoil layer; consequently, they are used mainly for pasture.

Donerail silt loam, gently sloping phase, occupies a small acreage in this soil association area. It is associated with the Maury soils but is less well drained and, consequently, is of somewhat limited value for crops.

Wooded areas are not extensive in this soil association. They are mostly on Rockland and Gullied land. Scattered chinquapin oak, black walnut, white elm, sugar maple, basswood, yellow-poplar, and black locust indicate the character of the original forest. Areas occupied by Mines, pits, and dumps, which are a result of phosphate mining, have revegetated naturally with black locust in most places and with sycamore and willow in the moist to wet pit areas.

In the Braxton-Maury-Armour association, soils of capability classes II and III predominate. It is not difficult to keep productivity high on these soils. Some of the most productive farms have a part or all of their acreage in this association. The soils are generally suited to a wide variety of crops, including all those common to the county. Most of the soils have been cleared and are used mainly for crops or pasture. General livestock farming prevails. Corn, small grains, and legumes for hay and pasture are grown.

Inman-Culleoka-Hicks-Maury (coarse phases) association

Most of the soils of this association are high in phosphorus, moderately low in other plant nutrients, and acid. They occupy sloping to steep parts of ridges of the outer Central Basin that border and extend into the lower lying inner Central Basin. The relative positions of the soils in this association are shown in figure 9.

This association is in the east-central part of the county. This area has moderate dissection, narrow to fairly broad ridgetops, and moderately steep or steep V-shaped valleys. The underlying rocks are phosphatic sandy limestone and shale. Most areas, particularly those on the steeper slopes, contain flat fragments of leached sandy limestone or shale. These fragments interfere with cultivation in some places.

Coarse phases of the Maury soils generally occupy the broad, smooth slopes. They have developed in material weathered from sandy rocks. The subsoil contains some sand. These soils are moderately productive.

Hicks soils generally occupy the ridgetops that are underlain by sandy rocks. They have light-brown to yellow surface and subsoil layers and sandy pockets in the subsoil.

Culleoka soils occur on the strongly sloping to steep parts of the ridges. They consist chiefly of colluvial materials that have accumulated on the slopes during

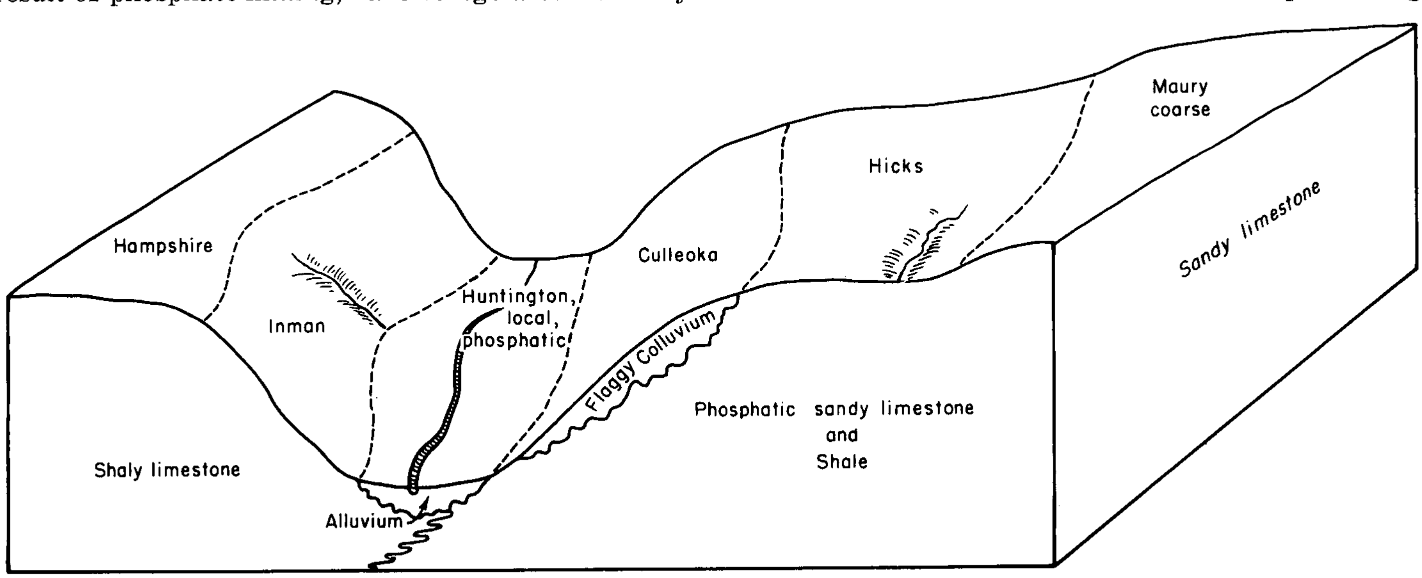

Figure 9.—Sketch showing relative positions of soils in the Inman-Culleoka-Hicks-Maury (coarse phases) association.

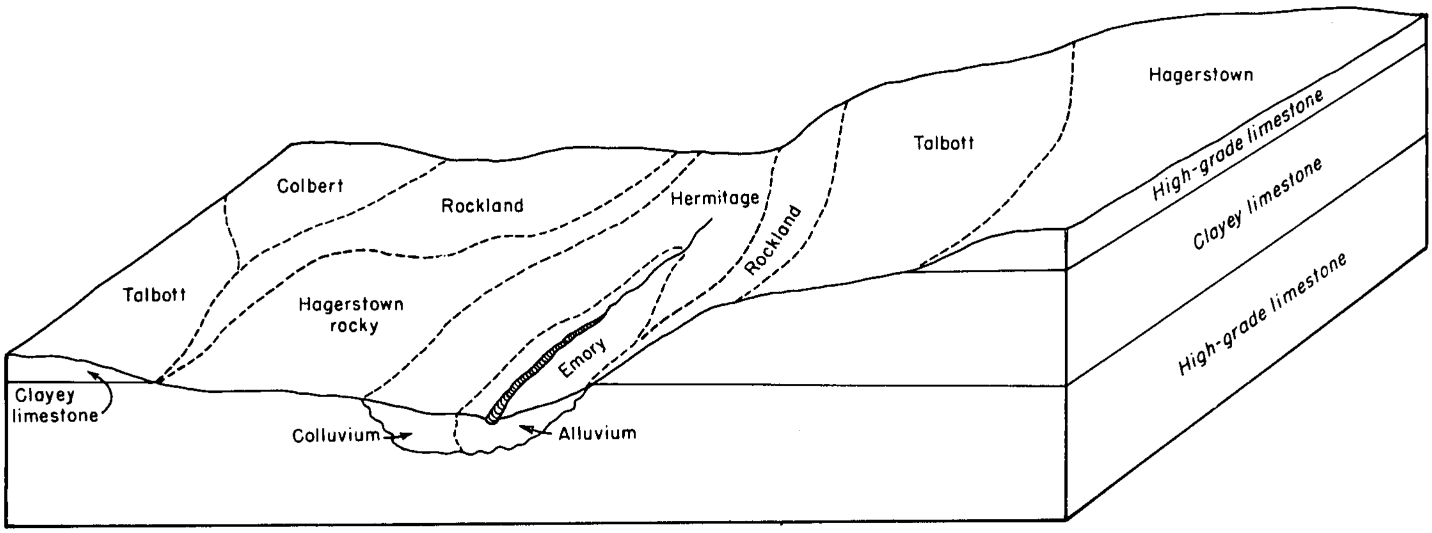

Figure 10.—**Sketch showing relative positions of soils in the Rockland-Talbott-Hagerstown (rocky) and Talbott-Hagerstown-Rockland associations.**

the weathering of sandy limestone and shale. The deep, open, light-brown surface layer becomes more yellow and slightly heavier with depth. On some of the steeper areas weathered limestone fragments interfere with cultivation.

The Hampshire soils generally occupy sloping areas that are underlain by shaly rocks. They have a light-brown surface soil and a brown to yellow heavy clay subsoil.

Inman soils occupy the steeper slopes of the ridges in this area. They have developed from shaly rocks similar to those from which the Hampshire soils developed, but they are shallower and have little subsoil development. Inman soils have light-brown surface soils and thin yellow subsoils.

Armour and Huntington soils occur at the base of slopes and along the small drainageways. Their surface and subsoil layers are somewhat lighter colored than those of the other Armour and Huntington soils in the outer Central Basin.

Upland hardwoods are on the Hicks, Inman, Culleoka, and associated soils. The species are similiar to those on the areas composed mainly of Frankstown, Dellrose, and Mimosa soils. They are: Shumard red oak, chinquapin oak, sugar maple, beech, black locust, redbud, scalybark hickory, white elm, ironwood (*Ostrya virginiana*), redcedar, mulberry, hackberry, and blackhaw. This soil association, along with the Dellrose-Frankstown-Mimosa (cherty), is more generally wooded than any of the other areas of the outer Central Basin.

This association has a considerable acreage moderately well suited to crops requiring tillage, and much of the rest is suited to pasture. Soils of capability classes II and III generally occupy the broader ridges and narrow valleys. In some places, particularly on the steeper slopes, a large acreage is idle or is in low-quality pasture. Its productivity has been greatly reduced by erosion. Although the soils of this association are suited to general farming, they are not so fertile or productive as the soils of the Braxton-Maury-Armour association and are usually seriously eroded if cultivated. Livestock production is important on the farms.

Talbott-Hagerstown-Rockland association

The Talbott and Hagerstown soils, where not severely eroded, are at least moderately productive. Those having heavy clay subsoils generally have been severely eroded and require careful management. They are not very favorable for plant growth. All of the soils are acid. They occupy gently sloping to rolling areas in the inner Central Basin. There are a few moderately steep areas near the creeks and other drainageways. The relative positions of the soils in this association are shown in figure 10.

This association occurs in the eastern part of the county. The largest area is near the northeastern boundary. The underlying rocks range from high-grade to clayey limestone, and they outcrop in many places. Some of the soils have chert fragments from the parent rock.

The Talbott soils occupy positions similar to those of the Hagerstown soils. They are moderately deep and have brown surface soils and yellowish-red heavy clay subsoils.

The Hagerstown soils have brown surface soils and yellowish-red subsoils and are deep to bedrock. They are very productive when managed properly and rank among the best farming areas in the association.

The Hermitage and Emory soils occupy the more nearly level areas at the base of slopes and along drainageways. They are made up of soil materials that have washed and moved down from the surrounding soils. Both soils have brown surface layers and reddish subsoils, but the Emory soils have a much deeper surface soil and a less developed subsoil.

There is a considerable acreage of the miscellaneous land type, Rockland, alternately associated with other soils in this association.

The Colbert soils generally occur along the outer edges of the association near the outer Central Basin.

Their surface layers are developed partly from phosphatic materials that washed or rolled from Culleoka, Inman, or Hicks soils. They have light-colored surface soils and yellow heavy clay subsoils.

Redcedar and hardwood trees are common in this area that is composed mainly of Hagerstown and Talbott soils. They make up a small part of the forest in the outer Central Basin and practically all of the forest in the inner Central Basin. Trees of this type grow on the eroded phases of the Hagerstown and Talbott soils and on Gullied land. They also grow on Rockland, Talbott material, sloping, and on limestone outcrop sites that permit tree growth. The hardwood species associated with redcedar include scalybark, white and pignut hickory, white and green ash, mulberry, black walnut, persimmon, elm, black locust, hackberry, chinquapin and white oak, and ironwood (*Ostrya virginiana*).

Much of this association consists of soils of capability classes II, III, and IV. Soils of classes VI and VII occupy a small acreage. The distribution is such that there is not enough good cropland on some farms. Most of the crops common to the county are grown in this area.

Rockland-Talbott-Hagerstown (rocky) association

Nearly all the soils in this association are shallow to bedrock and quite droughty during the summer season. Generally the subsoil, and in many places the plow layer, is heavy or compact clayey material. Much of the acreage is moderately well drained, acid, and moderate to low in fertility.

This association is within the inner Central Basin. It extends along the entire length of the eastern edge of the county. The soils occupy smooth gentle slopes that are underlain by high-grade to clayey limestone. The limestone often outcrops and forms large "glady" or rocky areas. In many places, limestone rockland predominates. Other parts of the landscape are occupied by the Talbott soils and the rocky phase of the Hagerstown soils. The relative position of the soils in this association is shown in figure 10.

The Talbott soils in this area are similar to those in other parts of the inner Central Basin. They are more nearly level and somewhat more shallow to bedrock, however, and contain patches of chert fragments that have weathered out of the underlying rocks (fig. 11).

Hagerstown rocky silty clay loam, eroded gently sloping phase, differs from other Hagerstown soils in the area mainly in having outcrops of limestone bedrock. Close to the rock outcrops, the soil is shallower than usual and has a heavier, less friable subsoil.

The Pickaway soils occupy small scattered areas. They differ from other soils in the area mainly in having a panlike layer, below the subsoil, that is full of small black concretions. They have light-colored surface soils and yellow subsoils.

The Hermitage and Emory soils are at the base of the mild slopes in large depressed areas and along the small drainageways. They range from brown to red and are made up of soil materials washed from the surrounding soils. They are the more productive soils of the area.

Figure 11.—**Bermudagrass and bluegrass pasture on Rockland, Talbott material, in foreground, inner Central Basin. Talbott and Pickaway soils on farmstead in background.**

The Burgin soils also are in the large depressed areas and along the small drainageways. They have developed mainly from soil materials washed from the nearby clayey soils and rockland areas. They are dark colored, heavy, and somewhat poorly drained.

The redcedar forest type occurs in situations similar to those of the redcedar-hardwood forest type. Such areas north and south of the Duck River mostly consist of Rockland, Talbott material, sloping, and other areas of Rockland. They support mostly small and slow-growing redcedar and scrubby hardwoods. Redcedars range from 6 to 8 inches in diameter at breast height when they are about 40 years old. Grazing injures the young trees. The grass stand among the trees is sparse and does not provide enough grazing for livestock to justify the damage done to the trees.

Much of this association consists of soils of capability classes IV, VI, and VII, mainly because of the rocks on or near the surface. Some farms in this association do not have enough good cropland. Cleared areas are used mainly for pasture, corn, and hay.

Etowah-Huntington (local alluvium phosphatic phase)-Emory association

This association joins many other associations in the county because it occurs near and along Duck River and the major creeks and streams throughout the county. The soils of this association occupy gently sloping to moderately steep positions above the present stream overflow. Their relative positions are shown in figure 12. On the steeper slopes in many areas, erosion has exposed deposits of waterworn gravel.

The Etowah soils are on high stream terraces and cover most of the association. They are well drained, deep, and easily worked. Most areas contain various amounts of phosphorus, but those in the extreme eastern part of the county have very little. These soils are inherently fertile. They have brown surface soils and light red subsoils. In the more level areas, they are very productive, but many of the steeper slopes are severely eroded and are restricted in crop use.

A small acreage of Huntington silt loam, local alluvium phosphatic phase, and Emory soils occur at the base of mild slopes and along small drainageways.

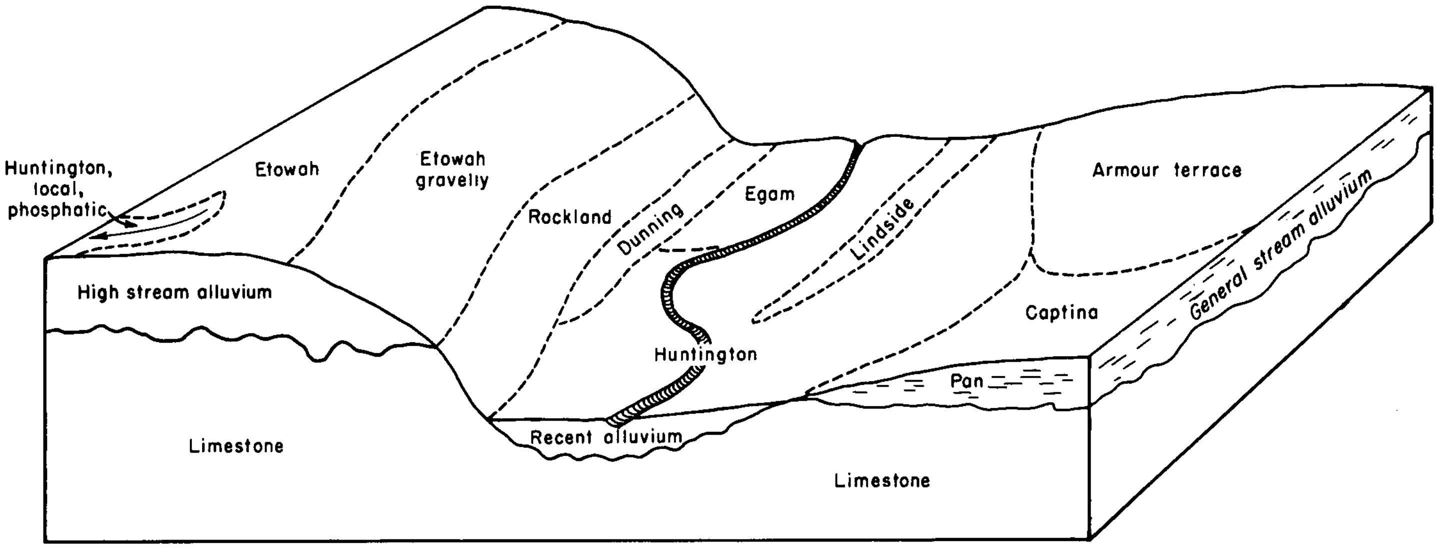

Figure 12.—Sketch showing relative positions of soils in the Etowah-Huntington (local alluvium phosphatic phase)-Emory and Huntington-Lindside-Armour (terrace phases)-Egam associations.

Soils of capability classes II and III predominate in this association. High productivity is not difficult to maintain on these. Soils of class IV occupy the steeper slopes. A great part of the acreage in this association has been cleared and is used mainly for crops. Parts of the cleared areas are used for pasture that is generally rotated with other crops.

Huntington-Lindside-Armour (terrace phases)-Egam association

The soils of this association are probably the most fertile in the county, but their use is somewhat limited by periodic flooding. They occupy low stream terraces and bottom lands along the Duck River and tributary creeks. Most areas are in the meanders of the streams and consist of undulating to rolling stream terraces and irregular strips of nearly level bottom lands along the rivers and creek channels. The relative positions of the soils in this association are shown in figure 12.

The soils on the stream terraces have moderate to high fertility and are moderately well drained to well drained. The soils on the bottom lands are very fertile and easily worked, and most of them are moderately well drained to well drained. The soils of the bottom lands near the inner Central Basin consist partially of materials washed from very clayey limestone. Those near the Highland Rim have chert fragments throughout the profile. These fragments washed from the cherty hills.

The Huntington soils occupy the bottom lands. They are well drained and have brown soil layers. Frequent overflows help maintain their fertility.

The Lindside soils generally occur along the depressed areas in the bottoms, and water often stands on the surface after the floods have receded. The Lindside soils have many characteristics similar to those of the Huntington soils but are less well drained.

The Egam and Dunning soils are darker colored than the other bottom-land soils and generally have a compact or somewhat heavy soil layer below the surface. The Egam soils are moderately well drained and occur with the Huntington soils on the higher bottoms near the streams. The Dunning soils are very dark gray or black, poorly drained, and generally in low places back from the streams.

The Armour terrace phase soils occupy the broad smooth terraces. They have developed from stream deposits washed from areas of phosphatic limestone in the uplands. They have dark-brown surface layers and brown subsoils.

The Captina soils occupy low terraces similar to and near those occupied by the Armour soils. They are made up of the same soil materials as the Armour terrace phase soils, but they are lighter colored and have a brittle fragipan layer below the subsoil.

The soils of this association are cleared for the most part, except along the bluffs and streambanks. On the streambanks such trees as silver maple, sycamore, willow, boxelder, sweetgum, white elm, and white and green ash are common.

This association is one of the most productive in the county, and crop yields are relatively high. Soils of capability classes I and II predominate on the bottom lands, and soils of class II on the low stream terraces. The fertility, especially of the bottom lands, is easily maintained, and the soils of the terraces are well suited to a variety of crops without especially exacting management. Parts of the cleared areas on the low terraces are used for pasture grown in rotation with other crops. Much of the bottom land is used intensively for row crops, chiefly corn, although hay and pasture are grown to some extent. Rotations are more common on the terraces, where corn, small grain, and hay are grown.

Relations of the Soil Series

Some of the relations of soils to each other can be brought out by a reference to the position of each soil series in the landscape where it is located. Soils are located on the uplands, the colluvial lands, the alluvial terraces, and the bottom lands. Table 4 shows the

TABLE 4.—*Soil series arranged by topographic position, parent material, and drainage*

SOILS OF THE UPLANDS

Parent material	Excessively drained[1] (sloping to steep)	Well drained[2] (gently sloping to steep)	Moderately well drained[3] (gently sloping to strongly sloping)	Somewhat poorly drained[4] (nearly level to sloping)	Poorly drained[5] (nearly level)
Residuum from:					
High-grade limestone		Hagerstown			
High-grade phosphatic limestone.		Maury	Donerail		
Phosphatic limestone, some chert.		Braxton			
Clayey limestone		Talbott[6]			
			Pickaway	Pickaway (variant)[7].	
Clayey phosphatic limestone			Mimosa[6]	Ashwood[8]	
Very clayey limestone, with phosphatic influence.				Colbert[8]	
Cherty limestone, some silty material.		Mountview	Dickson		
Cherty limestone, some phosphatic shale.		Frankstown[9]			
Very cherty limestone	Bodine[9]				
Interbedded phosphatic sandy limestone and shale, chiefly shale.	Inman[9]		Hampshire[6]		
Phosphatic sandy limestone		Maury (coarse phase).			
		Hicks			

SOILS OF THE OLD COLLUVIAL LANDS

Parent material	Excessively drained[1] (sloping to steep)	Well drained[2] (gently sloping to steep)	Moderately well drained[3] (gently sloping to strongly sloping)	Somewhat poorly drained[4] (nearly level to sloping)	Poorly drained[5] (nearly level)
Old local alluvium from:					
High-grade limestone		Hermitage			
High-grade phosphatic limestone.		Armour			
Phosphatic limestone, some chert.		Armour (cherty)			
Phosphatic sandy limestone		Culleoka[9]			
Cherty limestone, with phosphatic influence.		Dellrose			
Very cherty limestone		Pace[6]			

SOILS OF THE YOUNG COLLUVIAL LANDS

Parent material	Excessively drained[1] (sloping to steep)	Well drained[2] (gently sloping to steep)	Moderately well drained[3] (gently sloping to strongly sloping)	Somewhat poorly drained[4] (nearly level to sloping)	Poorly drained[5] (nearly level)
Young local alluvium from:					
High-grade limestone		Emory[10]	Lindside (local alluvium phase)[8].		
High-grade phosphatic limestone.		Huntington (local alluvium phase).	Lindside (local alluvium phase)[8].		
Phosphatic limestone, some chert.		Cherty Huntington (local alluvium phase)[6].			
Clayey limestone, with phosphatic influence in places.			Godwin[6]	Burgin[7]	
Cherty limestone, some silty material.		Greendale[6]			

SOILS OF THE TERRACE LANDS

Parent material	Excessively drained[1] (sloping to steep)	Well drained[2] (gently sloping to steep)	Moderately well drained[3] (gently sloping to strongly sloping)	Somewhat poorly drained[4] (nearly level to sloping)	Poorly drained[5] (nearly level)
Old general alluvium from:					
Chiefly limestone		Etowah			
		Armour (terrace phase).	Captina (pan layer).		

See footnotes at end of table.

TABLE 4.—*Soil series arranged by topographic position, parent material, and drainage*—Continued

SOILS OF THE BOTTOM LANDS

Parent material	Excessively drained[1] (sloping to steep)	Well drained[2] (gently sloping to steep)	Moderately well drained[3] (gently sloping to strongly sloping)	Somewhat poorly drained[4] (nearly level to sloping)	Poorly drained[5] (nearly level)
Young general alluvium from:					
High-grade phosphatic limestone.	----------	Huntington----------	----------	Lindside[8]----------	
	----------	----------	Egam (compact subsoil)[6] [10].	----------	
Phosphatic limestone, some chert.	----------	Cherty Huntington[6].	----------	Cherty Lindside[8]--	
Clayey limestone, with phosphatic influence in places.	----------	----------	----------	----------	Dunning[7].

[1] These soils have indistinct profiles; surface drainage is rapid to very rapid.
[2] Red to brown subsoils, free of mottlings to a depth of about 30 inches.
[3] Brown to yellow subsoils, mottled at a depth of about 24 inches.
[4] Pale yellow, mottled or gray below a depth of about 6 inches.
[5] Light gray to nearly black, more or less mottled throughout profile.
[6] Ranges from well drained to moderately well drained.
[7] Ranges from somewhat poorly drained to poorly drained.
[8] Ranges from moderately well drained to somewhat poorly drained.
[9] Ranges from excessively drained to well drained.
[10] Ranges from nearly level to gently sloping.

position of each soil series, the parent rock, and the degree of natural drainage.

Uplands lie above the colluvial lands, terraces, and bottom lands. Most of the soils on uplands in Maury County have developed from the weathered products of local rocks. A thin layer of loesslike silty material formed part of the parent material of some of the soils.

Colluvial lands lie at the foot of slopes and in the heads of small drains and depressions. The soils have developed from materials washed or sloughed from adjoining higher slopes.

Alluvial terraces are the remnants of old stream deposits. Generally, they are above the overflow stage of present streams, and the soils occupy benchlike positions bordering the bottom lands. Low terraces that are located next to the stream bottoms are frequently called second bottoms.

Bottom lands occupy nearly level areas along streams. The soils consist of alluvial material that has been carried there and deposited by streams.

Descriptions of the Soils

In the following pages the soils of Maury County are arranged alphabetically by soil series. The characteristics of the series are described. A representative mapping unit of a soil series is listed first and described in detail. It is followed by the other mapping units. Some of the mapping units are described by stating their similarities to and differences from others. A brief discussion is given of the present uses and of the suitable uses and management appropriate for each soil mapping unit.

The approximate acreage and proportionate extent of the soils of Maury County are listed in table 5, and their location and distribution are shown by symbols on the maps in the back of the report.

Armour series

The Armour soils of the colluvial-alluvial lands are at the base of upland slopes and along streams where materials from the surrounding soils have accumulated. They are closely associated with the phosphatic soils of the Central Basin. They are deep, well drained, and highly phosphatic. They are generally highly productive.

The Armour soils are similar to the Maury soils of the uplands, especially in color, but their subsoil is less developed and more friable. They have many characteristics similar to those of the Hermitage soils, but they are highly phosphatic and have a subsoil that is more brown than red. The Armour soils are somewhat less productive than the Huntington soils and are more susceptible to erosion. In addition, their surface soil and subsoil layers are more developed. The Captina soils differ from the Armour soils in being lighter colored and in having a brittle pan layer below the subsoil.

Where the Armour soils are associated with cherty upland soils, they have a somewhat lighter colored surface soil and contain significant amounts of chert throughout the profile. Areas of Armour soils on low terraces along streams occur near the Huntington soils of the bottom lands, but generally they are not flooded so frequently as the adjoining bottom lands. Waterworn gravel may be on the surface and throughout the profile of Armour soils that occur in sharp bends of the larger streams.

Armour cherty silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Aa).—Areas of this soil are fairly extensive and widely distributed throughout the county in the hilly and steep parts of the outer Central Basin. The parent material washed or rolled from surrounding slopes of cherty Frankstown, Dellrose, and Mimosa soils. This cherty Armour soil differs from the cherty Pace soil that occurs in similar

TABLE 5.—*Approximate acreage and proportionate extent of the soils*

Soils	Area	Extent
	Acres	*Percent*
Armour cherty silt loam:		
Eroded gently sloping phase	2,362	0.6
Eroded sloping phase	3,870	1.0
Armour cherty silty clay loam, severely eroded sloping phase	706	.2
Armour gravelly silty clay loam, severely eroded sloping terrace phase	1,611	.4
Armour silt loam:		
Eroded gently sloping phase	13,809	3.5
Eroded gently sloping terrace phase	4,666	1.2
Eroded sloping phase	5,983	1.5
Armour silty clay loam, severely eroded sloping phase	1,483	.4
Ashwood rocky silt loam, gently sloping phase	116	(1)
Ashwood rocky silty clay loam, eroded sloping phase	704	.2
Ashwood rocky silty clay, severely eroded sloping phase	454	.1
Bodine cherty silt loam:		
Sloping phase	5,086	1.3
Eroded sloping phase	5,499	1.4
Moderately steep phase	1,716	.4
Eroded moderately steep phase	3,051	.8
Steep phase	29,533	7.5
Braxton cherty silty clay, severely eroded moderately steep phase	3,928	1.0
Braxton cherty silty clay loam, severely eroded sloping phase	13,538	3.4
Braxton silt loam, eroded gently sloping phase	3,286	.8
Braxton silty clay loam:		
Eroded sloping phase	6,874	1.8
Eroded moderately steep phase	1,917	.5
Burgin silt loam, phosphatic phase	1,013	.3
Burgin silty clay loam:		
Gently sloping phase	886	.2
Gently sloping phosphatic phase	2,751	.7
Captina silt loam, eroded gently sloping phosphatic phase	1,282	.3
Colbert silty clay, severely eroded sloping phosphatic phase	3,092	.8
Colbert silty clay loam, eroded gently sloping phosphatic phase	700	.2
Culleoka clay loam, severely eroded moderately steep phase	700	.2
Culleoka flaggy clay loam:		
Severely eroded moderately steep phase	60	(1)
Severely eroded steep phase	549	.1
Culleoka flaggy loam:		
Eroded moderately steep phase	35	(1)
Eroded steep phase	1,333	.3
Culleoka loam, eroded moderately steep phase	421	.1
Dellrose cherty silt loam:		
Eroded sloping phase	5,906	1.5
Eroded moderately steep phase	13,877	3.5
Severely eroded moderately steep phase	2,620	.7
Eroded steep phase	4,599	1.2
Dickson silt loam, eroded gently sloping phase	342	.1
Donerail silt loam, gently sloping phase	567	.1
Dunning silty clay loam, phosphatic phase	1,954	.5
Dunning and Lindside silty clay loams	495	.1
Egam silty clay loam, phosphatic phase	1,551	.4
Emory silt loam, gently sloping phase	1,476	.4
Etowah gravelly silty clay loam:		
Severely eroded sloping phase	2,294	.6
Severely eroded sloping phosphatic phase	3,739	1.0
Severely eroded moderately steep phosphatic phase	1,275	.3
Etowah silt loam:		
Eroded gently sloping phase	427	.1
Eroded gently sloping phosphatic phase	3,674	.9
Eroded sloping phosphatic phase	2,382	.6
Frankstown cherty silt loam:		
Eroded sloping phase	2,185	0.6
Moderately steep phase	7	(1)
Eroded moderately steep phase	145	(1)
Frankstown coarse cherty silt loam:		
Sloping phase	627	.2
Eroded sloping phase	2,905	.7
Moderately steep phase	103	(1)
Eroded moderately steep phase	634	.2
Steep phase	8,925	2.3
Godwin silt loam	2,724	.7
Greendale silt loam	275	.1
Gullied land	1,544	.4
Gullied land, phosphatic	15,424	3.9
Hagerstown silt loam, eroded gently sloping phase	1,074	.3
Hagerstown silty clay loam, severely eroded sloping phase	726	.2
Hagerstown rocky silty clay loam, eroded gently sloping phase	488	.1
Hampshire silt loam, eroded gently sloping phase	245	.1
Hermitage silt loam:		
Eroded gently sloping phase	1,094	.3
Eroded sloping phase	233	.1
Hicks flaggy silt loam, eroded sloping phase	492	.1
Hicks silt loam:		
Eroded gently sloping phase	507	.1
Eroded sloping phase	1,168	.3
Huntington cherty silt loam:		
Phosphatic phase	1,404	.4
Local alluvium phosphatic phase	7,996	2.0
Huntington silt loam:		
Depressional phase	206	.1
Phosphatic phase	8,061	2.1
Depressional phosphatic phase	849	.2
Local alluvium phosphatic phase	12,784	3.3
Inman shaly silty clay loam:		
Severely eroded moderately steep phase	756	.2
Severely eroded steep phase	249	.1
Inman and Hampshire silty clay loams, severely eroded sloping phases	4,018	1.0
Lindside cherty silt loam, phosphatic phase	549	.1
Lindside silt loam:		
Local alluvium phase	649	.2
Phosphatic phase	7,927	2.0
Local alluvium phosphatic phase	3,947	1.0
Made land	64	(1)
Maury silt loam:		
Eroded gently sloping phase	15,082	3.8
Eroded gently sloping coarse phase	902	.2
Eroded sloping coarse phase	423	.1
Maury silty clay loam:		
Eroded sloping phase	4,455	1.1
Severely eroded sloping coarse phase	1,017	.3
Mimosa cherty silt loam:		
Eroded sloping phase	2,194	.6
Eroded moderately steep phase	3,313	.8
Mimosa cherty silty clay loam:		
Severely eroded sloping phase	2,432	.6
Severely eroded moderately steep phase	6,149	1.6
Mimosa silt loam, eroded gently sloping phase	1,160	.3
Mimosa silty clay, severely eroded sloping phase	2,481	.6
Mimosa silty clay loam, eroded sloping phase	1,284	.3
Mines, pits, and dumps	8,366	2.1
Mine areas, reclaimed	487	.1
Mountview silt loam:		
Eroded gently sloping phase	3,003	.8
Sloping shallow phase	1,124	.3
Eroded sloping shallow phase	4,124	1.1
Mountview silty clay loam, severely eroded sloping shallow phase	726	.2
Pace cherty silt loam, eroded sloping phase	340	.1

See footnote at end of table.

TABLE 5.—*Approximate acreage and proportionate extent of the soils*—Continued

Soils	Area	Extent	Soils	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Pickaway silt loam:			Rockland, Talbott material, sloping	5,667	1.4
Somewhat poorly drained variant	127	(1)	Settling basins	923	.2
Eroded gently sloping phase	279	(1)	Talbott silty clay loam, eroded gently sloping phase	3,168	.8
Riverwash	1,013	.3	Talbott silty clay, severely eroded sloping phase	4,509	1.2
Rockland:					
Sloping	24,098	6.1			
Steep	16,952	4.3	Water	1,226	.3
Rockland, Mimosa and Inman materials:					
Sloping	6,947	1.8	Total	392,960	100.0
Steep	7,813	2.0			

[1] Less than 0.1 percent.

colluvial positions in the Highland Rim in that it is darker brown, contains phosphorus, and is much higher in organic matter.

Representative profile:

0 to 10 inches, brown very friable silt loam; contains fragments of chert and phosphatic parent material; medium acid.

10 to 20 inches, brown friable cherty silt loam splotched with rust brown; medium crumb structure; contains a few small black concretions; strongly acid.

20 to 30 inches +, yellowish-brown friable (slightly compact in places) cherty silty clay loam; splotched with rust brown and yellow; a few black concretions; medium subangular blocky structure; strongly acid.

Cherty clay or chert beds occur at depths of 30 to 60 inches.

Areas of this soil that occur near the edge of the Highland Rim are somewhat lighter in color throughout the profile and contain more chert in the surface layer. In a few places soils with a weak, panlike layer below the subsoil are included. Small areas that are only slightly eroded are included in this mapping unit. These areas have management requirements similar to those of this eroded gently sloping phase.

Armour cherty silt loam, eroded gently sloping phase, is moderately deep and strongly to medium acid. Both runoff and internal drainage are medium. Because of chertiness, this soil is difficult to till in places.

Present use.—The productivity of this soil is moderately high. Most of it has been cleared and is now used for crops and pasture; very little is idle. On farms consisting largely of hilly and steep soils, this soil is used year after year, mainly for tobacco and vegetables. Systematic crop rotation and fertilization are not generally practiced. Little attention is given to controlling surface runoff.

Suitable uses (unit IIe–1).—This soil is well suited to production of row crops. A short rotation can be used without causing serious erosion, because of the chert content and gentle slope of this soil. The soil is suited to a wide variety of crops, including corn, burley tobacco, small grains, hay, vegetables, and fruits.

In certain areas, especially where the land is to be cultivated or used for hay crops, farming operations can be made easier by removing the larger chert fragments.

Armour cherty silt loam, eroded sloping phase (5 to 12 percent slopes) (Ab).—Because of its stronger slopes and more severe erosion, this cherty soil has lost more surface soil than the eroded gently sloping phase. In a few places where the subsoil material is exposed, the surface layer is heavier in texture. Only a few areas are slightly eroded.

This soil is strongly acid throughout the profile. Soil moisture conditions are good. They are somewhat less favorable than in the eroded gently sloping phase, however, because of the stronger slopes and the consequent greater loss of water through runoff.

Present use.—Practically all of this soil has been cleared and cropped. About a fourth is idle each year. Corn and lespedeza are the principal crops, although many other crops are grown on this soil. Little attention is given to erosion control.

Suitable uses (unit IIIe–1).—This soil is moderately productive. It is suited to the same crops as the eroded gently sloping phase. Similar rotations are also suitable, although row crops should be grown less frequently.

Armour cherty silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Ac).—This colluvial soil differs from the eroded gently sloping phase mainly in having lost most of its original surface layer because of the rapid runoff on the stronger slopes. Shallow gullies are common in places, and a considerable amount of chert has accumulated on the surface. The plow layer frequently consists of cherty subsoil material that is rather difficult to work and conserve. In places the chertiness prevents the use of the soil for crops requiring frequent cultivation. This soil is generally strongly acid. It is associated with the same soils as the eroded gently sloping phase.

Present use.—Much of this soil is idle or considered wasteland. A large acreage is in unimproved pasture, but some is used for row crops, especially corn. As now managed, this soil is not very productive either of row crops or of pasture. The plants in pastures are usually somewhat undesirable, since very little fertilizer is used.

Suitable uses (unit IIIe–1).—On most farms this soil can be best used for permanent pasture or mixed

grass-and-legume hay crops. After it has been in a well-managed pasture for several years, it can be used for row crops in a long rotation.

Armour gravelly silty clay loam, severely eroded sloping terrace phase (5 to 12 percent slopes) (Ad).—This soil is on the low terraces. It generally occupies short narrow slopes below the eroded gently sloping terrace phase but slightly above the Huntington, Egam, Lindside, and Dunning soils of the bottom lands. It differs from the eroded gently sloping terrace phase in slope and degree of erosion. Most of the original surface soil has been removed, and the gravelly subsoil layer is now exposed. Small pieces of round waterworn gravel are on the surface. In places there are enough in the plow layer to interfere somewhat with tillage. Gullying is not common. The underlying rock formation outcrops in a few places. In some areas the exposed subsoil is heavier in texture and more yellow and may not be very permeable to air, plant roots, and water. The soil is strongly acid and low in organic matter and moisture-supplying capacity.

Present use.—This soil has been used for crops and pasture, but most of it is now idle or in unimproved pasture. A few areas are still managed like gently sloping Armour soils and level soils of the bottom lands. This intensive use causes their further deterioration. Crop yields are very low. Good soil management is practiced in few places.

Suitable uses (unit IIIe–1).—This soil is suited to crops requiring tillage. Because it is low in fertility, droughty, and at times eroded and scoured by floodwaters, it is best suited to close-growing hay crops or pasture. Fair pastures can be established and maintained with liberal applications of lime and fertilizer other than phosphate, but amounts should be determined by a soil test. Grazing should be carefully controlled, as pasture yields will probably be low during the drier periods and plants may be permanently injured by overgrazing.

Armour silt loam, eroded gently sloping phase (2 to 5 percent slopes) (Ae).—This soil is at the foot of slopes bordering upland soils of the Mimosa, Maury, and Inman series. It has developed from materials washed or moved down from the nearby upland soils that are underlain by phosphatic limestone. Most areas of this soil are in the central part of the county, but areas occur in nearly all parts of the outer Central Basin.

Representative profile:

- 0 to 14 inches, dark reddish-brown friable silt loam; slightly acid.
- 14 to 36 inches +, strong-brown to brown friable silty clay loam; medium subangular blocky structure; contains a few black concretions and small chert fragments in lower part; medium acid.

Phosphatic limestone occurs at depths of 3 to 10 feet.

Where associated with the Hicks, Inman, and Culleoka soils, this soil has a lighter brown surface soil and a somewhat lighter texture throughout the profile. Areas of this soil close to severely eroded or gullied slopes receive recent local wash of subsoil material from these slopes. These variations generally will require the same use and management as the eroded gently sloping phase, but some areas are less productive. A few areas where little or no erosion has taken place are included in this mapping unit.

Armour silt loam, eroded gently sloping phase, is slightly to medium acid and has a moderately high content of organic matter and plant nutrients. Runoff and internal drainage are medium. The profile is friable and porous enough to allow easy percolation of water, as well as root penetration and circulation of air. Farming machinery can be used easily on this soil because of the gentle relief and the physical condition of the surface layer.

Present use.—Practically all areas of this soil have been cleared and intensively cropped. As a result, more soil has been lost through erosion than has been received from the surrounding upland soils. The larger areas of this phase are usually farmed separately, but small areas are generally used and managed the same as the dominant soils in the field. Almost all crops common to the area are grown. Such row crops as tobacco and corn are usually planted. Very little of this soil is in permanent pasture. Fertilizers are not used very extensively, and rotation of crops and erosion control are not practiced to any degree.

Suitable uses (unit IIe–1).—Because of its good physical properties, Armour silt loam, eroded gently sloping phase, is one of the more productive soils of the county. It can be conserved without difficulty, and all crops common to the county can be expected to give high yields under good management.

Armour silt loam, eroded sloping phase (5 to 12 percent slopes) (Ag).—This soil is more likely to erode than the eroded gently sloping phase because of its stronger slope. It occurs in the same localities and in association with the same soils as the eroded gently sloping phase. Runoff is medium to rapid, and internal drainage is medium. Small areas that contain eroded patches with heavier textured surface soils are included in this mapping unit.

Present use.—Armour silt loam, eroded sloping phase, is moderately productive. Crop yields are estimated to be somewhat lower than on Armour silt loam, eroded gently sloping phase. Approximately the same crops are grown.

Suitable uses (unit IIIe–1).—The fertility of this soil has been reduced because erosion has removed a significant amount of the original surface soil. Nevertheless, in most places this eroded soil is suitable for intertilled crops under good management.

Armour silt loam, eroded gently sloping terrace phase (0 to 5 percent slopes) (Af).—This soil occupies low terraces. The larger, more extensive areas are along the Duck River, but smaller areas are along the large creeks throughout the Central Basin. This soil was developed from stream deposits washed from soils that were derived from phosphatic limestone. The phosphatic Huntington, Egam, Lindside, and Dunning soils are on the adjacent bottom lands, and the Etowah soils occupy nearby terraces at somewhat higher elevations.

Representative profile:

0 to 12 inches, dark-brown friable silt loam; medium to slightly acid.
12 to 24 inches, strong-brown, friable, light silty clay loam; medium acid.
24 to 36 inches +, yellowish-red to reddish-yellow firm silty clay loam; contains small pebbles and a few black concretions; streaked with rust brown in lower part; strongly acid.

Limestone at depths of 36 inches or more.

A few areas that are less brown nearly resemble the Captina soils in color but, unlike them, lack a distinct pan. Some areas are so eroded that the present surface layer is a mixture of the remaining surface soil and the upper part of the subsoil. Gravel spots are in a few places.

This soil is medium to slightly acid, high in phosphorus, and moderately high in organic-matter content. Areas that have been cultivated continuously may have a lighter colored surface soil. Both runoff and internal drainage are moderate, and the surface and subsoil layers are permeable to air, water, and plant roots.

Present use.—All of this soil is cleared. It is used intensively for a variety of crops, particularly corn and hay. Very little is idle. Crops are not systematically rotated, and few are fertilized.

Suitable uses (unit IIe–1).—This is a very productive soil for crops and pasture. It has mild relief and is easy to work and conserve. Short rotations consisting of a row crop followed by winter-cover crops and grains are well suited. Deep-rooted legumes, such as alfalfa, produce good hay yields. Yields of winter small grains, however, may be somewhat reduced at times by variations in climate that occur at these elevations along the streams. Lime, and fertilizer other than phosphate, is generally needed for most crops. Applications should be based on a soil test, as some crops may need only moderate amounts of fertilizer. Where suitable crops are rotated and fertilized properly, special practices for controlling further erosion generally are not necessary.

Armour silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Ah).—This soil is similar to the eroded gently sloping phase of Armour silt loam except that it occupies stronger slopes and has lost three-fourths or more of the original surface soil and part of the subsoil through erosion. As a result of erosion, some fragments of the parent material have accumulated in the plow layer. The present surface soil is generally acid in reaction, poor in tilth, and low in organic-matter content. Subsoil material has been mixed with the surface layer, and, therefore, the capacity of the soil to absorb water has decreased.

Present use.—Most of this soil has been cleared and is used for crops and pasture. Each year a large acreage is in unimproved pasture or lies idle. Crop production has been reduced because of erosion. No regular rotation is followed, and fertilizers are not commonly used.

Suitable uses (unit IIIe–1).—The uses of this soil are somewhat limited. It is suitable for crop production, but corn and other row crops are suited only if grown in long rotations. Shallow-rooted crops are generally injured by droughts. Crop yields can be kept at a good level by careful management practices.

Ashwood series

The Ashwood series consists of shallow soils of the uplands. These soils generally occupy fairly small areas on the somewhat rocky slopes adjacent to cherty soils and Rockland areas in the outer Central Basin. The material forming these soils is residual from phosphatic clayey limestone such as that of the Catheys and Cannon formations. The Ashwood soils are somewhat poorly drained to moderately well drained. The imperfect drainage is partly caused by seepage waters from the slopes above.

The texture of the surface layer of the Ashwood soils ranges from a silt loam to a silty clay loam. The texture of the subsoil ranges from firm silty clay loam to clay. These soils are slightly acid to neutral throughout the profile.

The Ashwood soils are chiefly associated with the Dellrose and cherty Mimosa soils and the miscellaneous Rockland types. They differ from them in having a darker surface soil and a very heavy textured subsoil and in being shallower to phosphatic limestone. They differ also in not having a large amount of chert on the surface and throughout the soil.

Ashwood rocky silt loam, gently sloping phase (0 to 5 percent slopes) (Ak).—This soil is generally on the crests of low hills or knobs and is associated mainly with the Mimosa soils and Rockland areas.

Representative profile:

0 to 6 inches, very dark gray friable silt loam; crushed particles are dark brown; slightly acid.
6 to 18 inches, brownish-yellow firm silty clay loam to silty clay (hard when dry, plastic when wet); coarse granular structure; contains a few black concretions; neutral in reaction.
18 inches +, yellow and gray massive silty clay to clay; contains many black rounded concretions and fragments of parent material; neutral in reaction.

Clayey phosphatic limestone is at depths of 20 to 30 inches.

Chert fragments occur in a few small spots on the surface. Some areas that are more eroded than usual are included with this mapping unit.

This soil is relatively high in organic-matter content and mineral plant nutrients. Runoff is medium. Internal drainage, however, is slow because the soil is shallow and has a heavy-textured subsoil layer. There are limestone outcrops on the surface. They are only a few inches high in most places, but they seriously interfere with cultivation.

Present use.—A sizable acreage of this soil is cleared, but the areas are small and are not generally important agriculturally. Most of the soil is used for pasture and hay, but a small acreage is in corn and small grains. Pastures consist almost entirely of lespedeza and volunteer grasses. A few farmers grow sorghum each year. Hardly any fertilizer is used on this soil, and rarely any lime. Rotations are not followed, and some areas are left idle for several years after cropping. The original forest cover consisted of a mixture of redcedar and hardwoods. Many areas are still wooded.

Suitable uses (unit IVs–1).—This soil is not suited to a wide variety of crops. It is best suited to hay and pasture plants. Clipping of pastures or cutting hay is not difficult because rock outcrops are not generally high enough to interfere. This soil is easy to conserve if row crops are not grown successively. It is generally high in phosphorus and neutral in reaction. Consequently, care should be taken in applying lime and fertilizers without the results of a soil test. Yields of most crops are fair.

Ashwood rocky silty clay, severely eroded sloping phase (5 to 12 percent slopes) (Am).—This shallow soil in most areas has lost practically all the original surface soil through severe erosion. In places there are some chert or flaggy limestone fragments on the surface along with occasional bedrock outcrops. The present surface soil is plastic when wet and very hard when dry. Shallow gullies are common but can usually be crossed by farm machinery.

Runoff is rapid, but internal drainage is slow. This soil is moderately low in moisture-supplying capacity. It is generally medium to slightly acid. In most places it occurs on the lower slopes below Rockland land types and areas of the Dellrose and Mimosa soils in the outer Central Basin.

Present use.—Many areas of this soil are now idle as a result of severe erosion and misuse. Because of its association with Rockland areas, it often from necessity has been cleared and heavily cropped. Some parts are still used frequently for row crops. The growing of soil-building crops is not commonly practiced, but tillage is roughly on the contour where the soil is cultivated.

Suitable uses (unit VIs–1).—This soil has a very limited crop use. Because it is difficult to work and conserve, it is best suited to hay and permanent pasture crops. After this soil has been improved by soil-building crops, it may be suited to small grains grown in a long rotation.

Ashwood rocky silty clay loam, eroded sloping phase (5 to 12 percent slopes) (Al).—This soil has stronger slopes than the gently sloping phase. In addition, the thickness of the original surface soil is a few inches less. A small amount of chert is on the surface of this soil in places. It rolled from higher lying cherty Dellrose and Frankstown soils. Runoff is fairly rapid, but internal drainage is medium to slow. This soil occurs on slopes of low knobs and in the shallower areas of ridge spurs in close association with the Dellrose, Frankstown, and cherty Mimosa soils.

Present use.—This soil is generally used for pasture. Crop rotations are not commonly practiced, and many farmers let the land lie idle for several years after cropping. In places a good surface soil is difficult to maintain because of areas of exposed subsoil that are hard to work, especially when dry. Ordinarily, fertilizers are not applied to corn, sorghum, and lespedeza. Tillage is generally on the contour. Part of this phase is not cleared.

Suitable uses (unit IVs–1).—Most of this soil is best used for hay and pasture. Drought-resistant pasture grasses and legumes make good forage when grazed properly. This soil is suited to row crops only where the rock outcrops are less frequent. Under good management this soil can be conserved by using a fairly long rotation that includes a small grain.

Bodine series

The Bodine soils occupy the tops and the steep slopes of narrow winding ridges of the Highland Rim. They have developed in residuum derived from cherty limestone and generally are underlain by the Fort Payne chert in this county. The Bodine soils are associated with the more nearly level Mountview soils and the lower lying cherty Dellrose and Pace soils. They are excessively drained.

These soils are strongly to very strongly acid. A large part is in forest, and the rest is cropped or idle.

The soils of the Bodine series resemble those of the Frankstown series in some respects, but they are shallower to parent material, lighter in color, and not phosphatic. The associated Mountview soils are usually less cherty and deeper and have moderately well developed profiles.

Bodine cherty silt loam, sloping phase (4 to 12 percent slopes) (Ba).—This very cherty soil is in the highly dissected cherty limestone hills section. It occurs chiefly on the tablelike crests of high ridges in the western part of the county. It has developed from residuum of cherty limestone under a mixed deciduous forest consisting mainly of oak and hickory.

Representative profile:

0 to 10 inches, light-gray to light yellowish-brown very friable cherty silt loam; in forested areas upper 2 inches are dark grayish brown; strongly acid.

10 inches +, reddish-yellow coarse cherty silt loam to silty clay loam, mottled with gray, yellow, and red in lower part; very strongly acid.

Chert beds at 2 to 10 feet and cherty limestone at depths of 10 to 30 feet.

In some small areas large quantities of angular chert fragments as much as 10 inches in diameter are on the surface and in the subsoil. In forested areas the surface layer is darker because of the content of organic matter. Included in this mapping unit are small areas that have a light red subsoil. Small areas of Mountview soils whose boundaries were not clear were also included.

The soil is cherty throughout the profile. The chert content interferes with tillage and causes the soil to be droughty. Runoff and internal drainage are medium to rapid. The content of organic matter and plant nutrients and the general fertility are very low.

Present use.—Practically all of this soil is in cutover timber. It usually is not cleared, because of its chert content and low fertility. Most of the forest has been cut over several times, and when these areas are close to pasture fields, they are generally grazed.

Suitable uses (unit IVe–2).—Although crop production on this soil is poor to fair, it should be cleared only if it is much needed and can be protected by careful management. Only areas that are fairly large and readily accessible to farming operations should be cleared. The present forest cover should be managed so as to increase yields and improve the quality of the timber.

Bodine cherty silt loam, eroded sloping phase (4 to 12 percent slopes) (Bb).—This soil is similar to the sloping phase except that it has been cleared and has lost a few inches of the original surface soil. Under cultivation it usually acquires an ashy colored surface soil because of the loss of its small amount of organic matter. This soil occupies positions similar to those of the sloping phase. It is associated with the Mountview and other Bodine soils. Small areas of Mountview silt loam are included in this mapping unit.

Present use.—Bodine cherty silt loam, eroded sloping phase, is generally used for corn and lespedeza grown in rotation with weeds or wild pasture grasses. A small acreage is in crops, and the rest is in unimproved pasture or idle. Fertilizers are seldom used.

Suitable uses (unit IVe–2).—Because of the low natural fertility and droughtiness of this soil, crop production is generally low. Fair pastures can be established in many places by using good management practices.

Bodine cherty silt loam, moderately steep phase (12 to 25 percent slopes) (Bc).—This soil is somewhat shallower over chert beds or bedrock than the sloping phase of Bodine cherty silt loam. The surface soil may vary in depth within short distances, especially at the foot of slopes where colluvial material has accumulated. The quantity of chert in the soil varies, but it is usually sufficient to interfere with tillage.

This soil occupies strongly sloping uncleared tracts of land in the western, northwestern, and southwestern parts of the county in the Highland Rim area. It is associated with the Mountview and other Bodine soils.

This soil is very low in fertility and organic matter. Both runoff and internal drainage are rapid to very rapid. The soil has been affected little by erosion, however, as nearly all of it is forested.

Present use.—Practically all of this soil is in cutover timber.

Suitable uses (unit VIe–1).—Many areas of this soil are probably best left in forest. The low fertility, chertiness, and strong slopes make it poor for crops requiring cultivation. This soil could produce fair pastures if properly managed. Forest management should include practices that will increase the yield and quality of timber and protect it from fire.

Bodine cherty silt loam, eroded moderately steep phase (12 to 25 percent slopes) (Bd).—This phase consists of moderately steep areas that have been cleared and cultivated and, as a result, have been moderately eroded. Except for being more eroded, this soil is similar to the sloping phase. In some places so much of the original surface soil has been lost that the subsoil is exposed and is mixed with the surface layer. Chert fragments have accumulated on the surface as erosion progressed. There is more chert concentrated on the surface of this phase than on the noneroded phases.

Most of this soil is in the western part of the county and is associated with the Mountview and Pace soils and with other Bodine soils. Most areas are medium sized and on the upper ridge slopes, but there are several large areas in the northwestern part of the county.

This soil is droughty, low in organic matter and plant nutrients, and high in chert. There are some areas that have a redder subsoil.

Present use.—All of this soil has been used for crops. Most of it now is in unimproved pasture, although some is idle or considered wasteland.

Suitable uses (unit VIe–1).—This soil is poorly suited to row crops. Under good management it should produce fair hay and pasture crops. Quantities of chert and steep slopes make harvesting of hay crops difficult.

Bodine cherty silt loam, steep phase (25 to 60 percent slopes) (Be).—The thickness of the surface soil and subsoil is more variable in this phase than in the sloping phase. Large chert fragments are on the surface in many places, and angular chert fragments make up half or more of the volume of the subsoil. Some areas have shallow gullies. In other areas the subsoil layer has been exposed through erosion and is mixed with the remaining surface layer.

This soil occupies steep slopes of the cherty ridges in association with the higher lying Mountview soils and above the Dellrose soils of the Central Basin.

Both runoff and internal drainage are rapid to very rapid. The content of plant nutrients and organic matter and the moisture-holding capacity are low. Moisture conditions do not favor plant growth.

A few areas are included in this mapping unit that have a reddish subsoil. Also included, in the vicinity of Kinderhook, are areas with cherty loam texture.

Present use.—In many places this soil is still in forest. Where close to better cropland and pastureland, it is used for hay and pasture, but yields are low, even under good management. In many areas pastures consist chiefly of broomsedge and other wild grasses. When the soil is used for crops, corn is generally grown. The corn is followed by lespedeza or the land is left idle.

Suitable uses (unit VIIe–1).—This soil is not suited to crops requiring tillage and is very poorly suited to hay and pasture. It is used for pasture by some farmers through necessity. Cleared areas should generally be reforested, although trees grow more slowly and are of lower quality than on other cherty soils in the area.

Braxton series

The Braxton series consists of well-drained, moderately deep soils of the uplands. They have developed from weathered materials of the Catheys, Bigby, and upper members of the Hermitage formations in the county. These formations are of highly phosphatic limestones that contained chert impurities. The Braxton soils are widely distributed throughout the central part of the county and generally have gently sloping to moderately steep relief. They are chiefly associated with the Maury, Mimosa, Armour, and Huntington soils.

The positions of the Braxton soils in the landscape are similar to those of the Maury soils. Braxton soils differ from Maury soils chiefly in having a thinner surface soil, in containing some fine chert, and in having a heavier subsoil.

Braxton silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Bh).—Most areas of this soil are in the central part of the county and are there associated with the Maury, Mimosa, and Armour soils. In a few areas they are associated with the cherty Mimosa soils. These areas contain more chert than is normal for this phase.

Representative profile:

0 to 10 inches, dark yellowish-brown to dark-brown friable silt loam; in places contains some fine chert fragments; crumb structure; medium acid.
10 to 18 inches, yellowish-red to strong-brown friable silty clay loam; contains a few angular fragments of parent material; strongly acid.
18 to 30 inches, yellowish-red firm silty clay streaked with yellow and gray; medium subangular blocky structure; contains small black concretions and numerous fragments of parent material; strongly acid.

Cherty yellow clay at depths of 30 to 48 inches. Limestone at depths of 48 to 72 inches.

In a few places the color of the subsoil is more yellow. Some small areas have little, if any, fragments from parent material in the upper part of the surface layer. In areas closely associated with the terrace soils, this soil may have a little gravel in the surface layer.

This soil is moderately high in fertility and medium to strongly acid in reaction. Runoff is medium and internal drainage is medium to slow. Small quantities of fine chert or fragments of parent material are throughout the profile in many places. Bedrock limestone is below a depth of 30 inches in some places.

Present use.—Practically all of this soil has been cleared and has been farmed for many years. Corn, tobacco, and small grains are the most common crops. Hay and forage are grown on a small acreage. Little of this soil is idle. Crops are not systematically rotated, but fertilization is commonly practiced for cash crops.

Suitable uses (unit IIe–3).—If this soil is properly managed, moderately high yields of all common crops, including deep-rooted legumes, can be obtained. Yields of corn, tobacco, and small grains are moderately high, but somewhat lower than on the associated Maury soils.

Braxton cherty silty clay, severely eroded moderately steep phase (12 to 25 percent slopes) (Bf).—This soil is more severely eroded and shallower to bedrock than the associated Braxton silt loam, eroded gently sloping phase. Most of the original surface soil and part of the subsoil have been eroded away. Enough chert and fragments from the parent material are on the surface to interfere with cultivation. Sheet erosion has been severe, and shallow gullies are numerous. A few rock outcrops are common.

Depth to bedrock varies. The soil is strongly acid, low to very low in organic matter, and very low in moisture-supplying capacity. Internal drainage is medium to slow, but runoff is medium to rapid. This soil occupies rolling to hilly slopes in the central part of the county.

Present use.—Practically all of this soil has been cleared and used for crops and pasture, but poor use and management have caused severe erosion. Most of the soil is now in fair pasture or is idle.

Suitable uses (unit VIe–1).—This soil is not suitable for crop production, because it has strong slopes, moderate chert content, low fertility, and low moisture-supplying capacity. Most areas are best suited to pasture. One or more legumes should be included in the pasture mixture.

Braxton cherty silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Bg).—This soil differs from Braxton silt loam, eroded gently sloping phase, mainly in having stronger slopes and a cherty surface soil. In addition, it has lost practically all of the original surface soil and, in places, part of the subsoil through erosion. Small chert fragments are on the surface and in the plow layer, and there are a few bedrock outcrops in places. The plow layer is a yellowish-red firm (hard when dry) silty clay loam to silty clay. It is low in organic matter, plant nutrients and moisture-supplying capacity.

This soil occupies rather narrow slopes in association with other Braxton soils and with Maury, Mimosa, and Armour soils of the colluvial lands.

A few areas included in this mapping unit have less chert on the surface than normal. Others have a darker red subsoil. The subsoil has been mixed with remnants of the original surface soil during tillage. As a result, the present surface layer varies in color, texture, and chertiness in many places.

Present use.—All of this soil has been cleared and farmed for many years, but some areas now are idle or in permanent pasture. Corn, small grains, and lespedeza are the principal crops. The soil is generally used and managed like the surrounding soils. The lack of systematic crop rotations and proper fertilization on this soil generally accounts for its present low productivity.

Suitable uses (unit IVe–1).—Because this soil is cherty and severely eroded, it is poorly suited to crops requiring tillage. Productivity is low because the fertility is depleted and the tilth of the surface layer is poor. A permanent vegetative cover of hay and pasture crops is the most suitable use.

Braxton silty clay loam, eroded sloping phase (5 to 12 percent slopes) (Bk).—This soil differs from Braxton silt loam, eroded gently sloping phase, in slope and in having a thinner surface soil and small patches of exposed subsoil. The thinner surface soil is not so fertile as the surface soil of less eroded Braxton and Maury soils and has less available moisture. The exposed patches of subsoil are common though not abundant and are somewhat cherty in places. The rather numerous fragments of parent rock on the surface are not enough to interfere with tillage. This soil is mainly associated with Maury and Mimosa soils and other phases of the Braxton soils.

A considerable part of the original surface soil has been lost through erosion, and the remaining part has been mixed with the subsoil during tillage. As a result, there are some variations in the color and texture of the present soil.

This soil is moderately acid to strongly acid. The organic-matter content is moderate. Runoff is medium, but internal drainage is retarded to some extent by the heavier textured subsoil.

Present use.—Nearly all of this soil has been cleared, and most of it is cropped in about the same manner as the eroded gently sloping phase. The rotations and use of fertilizer are also similar, but crop yields are lower. Productivity is moderate.

Suitable uses (unit IIIe–2).—Although tilth has been impaired by erosion and the moisture supply for plants is limited during dry periods, this soil is fairly well suited to row crops. Close-growing crops, especially legumes for hay, pasture, and cover crops, should be on the soil as much of the time as is feasible. This soil is responsive to good management. Its productivity can be greatly increased.

Braxton silty clay loam, eroded moderately steep phase (12 to 25 percent slopes) (Bl).—This soil has a heavier textured plow layer than Braxton silt loam, eroded gently sloping phase. Also, its subsoil is somewhat shallower to bedrock. Small pieces of chert and partly weathered fragments from parent material are throughout the upper part of the profile but are more numerous in the lower subsoil. A few bedrock outcrops occur in many places. This soil is medium to strongly acid. It has medium to slow internal drainage and rapid runoff. It is permeable to air, roots, and water.

A few areas are mapped with this soil that have small severely eroded spots. In the north-central part of the county there are a few areas that have a darker red subsoil practically free of fragments of parent material. In some places near terrace soils, a few rounded pieces of gravel are on the surface.

This soil occurs mostly in small tracts on lower ridge slopes. It is associated with other Braxton soils and the Maury soils and is above the adjacent Armour and Huntington soils of the colluvial lands.

Present use.—Nearly all of this soil has been cleared and cultivated. Much of it is used for crops, especially small grains. Some is now idle or in permanent pasture. A few farmers have applied lime and some fertilizer.

Suitable uses (unit IVe–1).—This soil is not well suited to crops requiring tillage, because it has strong slopes, is susceptible to erosion, and is moderately low in moisture-supplying capacity. It is productive of hay and pasture plants, and on most farms it is best used for pasture.

Burgin series

The Burgin soils are somewhat poorly drained to poorly drained. This drainage is partly caused by seepage waters from the adjacent uplands. The Burgin soils were derived mainly from weathered clayey limestone materials. They generally occur along drainageways and at the foot of gentle slopes in association with the Ashwood, Mimosa, Godwin, and Talbott soils and the limestone Rockland areas in the Central Basin.

The Burgin soils are dark colored and heavy textured. They are slightly acid to neutral in reaction and, in the outer Central Basin, are fairly high in phosphorus.

The Burgin soils are similar to the Dunning soils of the bottom lands in color, texture, and drainage but differ from them mainly in occurring along small drainageways that are not flooded. In some areas the Burgin soils have a grayish-brown surface soil consisting of recent silty material washed from eroded upland soils.

Burgin silt loam, phosphatic phase (0 to 3 percent slopes) (Bm).—This soil occupies small, narrow areas along drainageways and small streams in the central part of the county. It is associated with the better drained Godwin soils of the colluvial lands and the Ashwood, Mimosa, and Braxton soils of the uplands.

Representative profile:

0 to 14 inches, very dark gray to dark reddish-brown friable silt loam mottled with rust brown and gray; contains a few black concretions; slightly acid.

14 inches +, black to very dark gray firm silty clay mottled with gray; contains many brown concretions and some rounded gravel; coarse granular structure; neutral.

Gravelly clay or limestone is at depths of 24 to 36 inches.

Many small, rounded, black or brown concretions are on the surface of this soil in many places. In a few areas the surface soil may be lighter gray in color.

The soil is moderately high in organic matter. It is saturated with water a good part of the year. Runoff and internal drainage are slow to very slow.

Present use.—About 50 percent of this soil is cleared and used for corn, small grains, and hay; other areas are in forest, in pasture, or are idle. Since this soil is in small tracts, it is generally managed like the surrounding soils. If adequately drained, it is very productive.

Suitable uses (unit IIIw–1).—This soil has good tilth, but poor drainage limits its use mainly to permanent pasture. In a few areas where this soil can be tiled or drained by open ditches, row crops and some hay crops can be grown with fair success.

Burgin silty clay loam, gently sloping phase (0 to 6 percent slopes) (Bn).—This soil was derived from material that washed mainly from slopes occupied by Talbott soils and from Rockland areas underlain by clayey limestone.

Representative profile:

0 to 6 inches, very dark grayish-brown friable silty clay loam; medium crumb structure; slightly acid.

6 to 18 inches, black firm silty clay loam with rust-brown mottlings; small black concretions; coarse granular structure; neutral.

18 inches +, mottled yellow and gray silty clay to clay; contains black concretions and some chert; neutral.

Clayey limestone occurs at depths of 24 to 30 inches.

Included in this mapping unit are small areas of very poorly drained soils, most of which are in the extreme eastern part of the county. In places the surface soil contains some chert and limestone fragments washed from the slopes of nearby Rockland areas.

This soil is high in organic matter. Runoff and internal drainage are slow. The somewhat poor drainage is caused by the seepage of water from adjacent uplands and by the heavy texture of the subsoil. The tilth is only fair. If plowed when wet, the soil becomes cloddy and less workable.

Present use.—Nearly all of this soil has been cleared and used for crops for many years, but some areas are now idle or in pasture. A few small areas are still in cedars. Corn, soybeans, sorghum, and les-

pedeza hay are the crops most commonly grown. Fertilizers are not generally used, and lime is rarely applied.

Suitable uses (unit IIIw–1).—The use of this soil is somewhat limited by impaired drainage and the heavy subsoil. Although naturally moderately fertile, it is not well suited to crops requiring tillage. If it is drained adequately, such crops as corn and sorghum can be grown. This soil is fairly well suited to small grains, hay, and pasture, and so far as feasible, should be used for these crops.

Burgin silty clay loam, gently sloping phosphatic phase (0 to 6 percent slopes) (Bo).—In most respects this soil is similar to the gently sloping phase. It differs mainly in being very high in phosphorus.

This dark-colored, heavy-textured soil occupies areas at the foot of gentle slopes and along drainageways. It is associated with Rockland areas and Mimosa and Ashwood soils.

Small rounded concretions occur on the surface of this soil in some areas. In a few places the parent material may be partially residual.

Present use.—Nearly all of this soil is cleared. It is used chiefly for corn and hay. Small grains are grown to a limited extent. Crops are fertilized very little.

Suitable uses (unit IIIw–1).—Because of unfavorable drainage and the tendency to become cloddy if cultivated when slightly wet, this soil is not well suited to crops requiring tillage. Such crops can be grown, but the yields are generally rather low. Tiling or construction of open ditches will improve drainage and make the soil more suitable for corn and small grains.

Captina series

The Captina series consists of moderately well drained soils on low terraces or second bottoms along the major streams. These soils were derived from alluvial sediments washed from soils that are underlain mostly by limestone. They are associated with the Armour and Etowah soils of the terrace lands and the Egam and Lindside soils of the bottom lands. The Captina soils are not so well drained as the Armour soils. The mottled, hard (when dry), brittle fragipan layer below the subsoil restricts internal drainage in the Captina soils. In drainage the Captina soils are similar to the Lindside soils of the bottom lands, but they are not covered by floodwaters so often. Most areas are cleared and used for row crops and hay.

Only one soil is mapped in the Captina series in Maury County.

Captina silt loam, eroded gently sloping phosphatic phase (2 to 5 percent slopes) (Ca).—This soil occupies gently sloping areas, and surface drainage is consequently moderately slow. The soil is moderately well drained internally. Moisture moves through the pan layer very slowly.

Representative profile:

0 to 8 inches, dark yellowish-brown friable silt loam; medium acid.

8 to 24 inches, yellowish-brown to reddish-yellow friable (slightly compact in places) silty clay loam with mottles of gray and yellow; contains many rounded, black concretions; strongly acid.

24 to 30 inches +, mottled brown, yellow, and gray friable silt loam (pan layer); contains concretions and gravel.

Gravelly clay is at depths of 30 to 48 inches.

In areas that have been cultivated for a number of years, the surface layer is light yellowish brown. Included in this mapping unit are a few small areas near the Highland Rim that are somewhat poorly drained and contain some chert in the surface layer. In a few included areas, there is no definite pan layer below the subsoil.

This soil is medium to strongly acid. It is permeable to roots, air, and water above the pan layer. Crawfish chimmeys occur in a few spots.

This soil is associated with the well-drained Armour and Etowah soils and with the Egam and Lindside soils of the bottom lands.

Present use.—Nearly all of this soil has been cleared and used for crops and pasture. Usually a small acreage is idle each year. Crops are not generally rotated. Although some fertilizer is used on corn, this soil is not commonly fertilized.

Suitable uses (unit IIe–2).—This soil is suited to most crops commonly grown in the county. It is moderately low in productivity, and continuous cropping and moderate erosion have further reduced crop yields. The soil is easily worked, but its slow drainage may delay tillage during spring.

Colbert series

The moderately shallow Colbert soils usually occur in association with the soils along the divide between the outer and inner Central Basin. They occupy areas between the higher lying, phosphatic soils of the Hicks, Culleoka, and Inman series of the outer Central Basin and the soils of the Talbott series of the inner Central Basin. Miscellaneous Rockland types are also closely associated. They were derived mainly from argillaceous limestone, generally the basal members of the Hermitage formation and an argillaceous member of the Lowville limestone. Bedrock outcrops are numerous, and the soil mass may contain small fragments of limestone or chert.

The Colbert soils differ from all of the associated soils because they were derived from heavy, plastic material mixed with a thin layer of phosphatic colluvial material. They differ from the closely related Talbott soils because they are phosphatic, shallower, more yellow, and more plastic in the subsoil.

Colbert silty clay loam, eroded gently sloping phosphatic phase (0 to 5 percent slopes) (Cc).—This soil occupies gently sloping areas in the inner Central Basin and is adjacent to the higher lying phosphatic soils of the Culleoka, Inman, and Hicks series in the outer Central Basin. It is closely associated with the Talbott soils and areas of Rockland, Talbott material, of the inner Central Basin.

Representative profile:

0 to 8 inches, brown friable silty clay loam containing some fine chert; medium acid.

8 to 24 inches, brownish-yellow to reddish-yellow friable silty clay loam; slightly plastic and hard; strongly acid.

24 inches +, reddish-yellow, mottled with yellow and gray, firm silty clay to clay; contains black concretions and limestone fragments.

Limestone bedrock is at depths of 15 to 60 inches.

In some areas there are many bedrock outcrops and limestone fragments. In intensively cultivated areas, the surface layer has a gray cast.

Runoff on this soil is moderate, but internal drainage is slow. The heavy subsoil is not favorable for the movement of air, water, and plant roots. Consequently, the soil is subject to further erosion and is droughty during summer. The surface soil has fairly good tilth. It is generally medium acid, but it ranges from slightly acid to strongly acid. The depth to the underlying limestone is variable in most places.

Present use.—Practically all of this soil has been cleared and cropped. Some areas, where rock outcrops and chert fragments in the plow layer do not interfere with tillage, are used for corn and small grains. Many areas are used for hay and pasture, but a significant acreage is idle. Good management is not commonly practiced on this soil.

Suitable uses (unit IVs–1).—This soil is best suited to pasture or hay. Small grains and row crops, particularly sorghum and soybeans, may be grown.

Colbert silty clay, severely eroded sloping phosphatic phase (5 to 12 percent slopes) (Cb).—This soil is more eroded than Colbert silty clay loam, eroded gently sloping phosphatic phase. Because the subsoil has been mixed with what is left of the original surface soil, the plow layer is heavier and harder to work than before part of the surface soil was lost. This soil has the same variations in color and the same rockiness as Colbert silty clay loam, eroded gently sloping phosphatic phase. Small platy fragments of limestone are numerous, and bedrock outcrops are common. Many areas have shallow gullies that expose the underlying bedrock in places. Runoff on this soil is rapid, but internal drainage is slow. This soil is closely associated with the Talbott soils and Rockland areas.

Present use.—Much of this soil was once cropped, but because of low yields and erosion, it is now used for pasture or is idle.

Suitable uses (unit VIs–1).—Because of strong slopes, erosion, and unfavorable tilth and moisture relations, this soil is very poorly suited to crops requiring tillage. It is moderately well suited to pasture.

Culleoka series

The Culleoka series consists of moderately young phosphatic soils. These soils occupy strong ridge slopes that are adjacent to and extend into the inner Central Basin. They have developed in materials weathered from phosphatic sandy limestone or interbedded limestone and sandy shale. Seepage waters from underlying formations, mainly the Hermitage, improve the moisture relations of these soils. Many flat, porous limestone fragments or flagstones are on the surface and throughout the profile in most places. The Culleoka soils are associated with the well-developed Hicks soils on the ridgetops and with the shallower Inman soils on adjacent slopes. The phosphatic Colbert soils occupy gently sloping areas below the Culleoka soils in some places.

The Culleoka soils resemble the Inman soils in position and source of parent material. They differ from them in consisting of colluvial material and in being deeper and more friable. The Hicks soils occupy more level areas than the Culleoka soils and have well-developed profiles.

Culleoka loam, eroded moderately steep phase (12 to 25 percent slopes) (Ck).—This soil is on ridge slopes of hilly areas in the east-central part of the county. It is associated with other Culleoka soils as well as with the Hicks and Inman soils. In some places, a few small, flat, weathered limestone or sandy shale fragments occur on the surface and throughout the soil mass. In a few small areas these fragments interfere with cultivation.

Representative profile:

0 to 8 inches, brown very friable loam; strongly acid.
8 to 20 inches, brownish-yellow to reddish-yellow friable clay loam; contains some fragments of weathered sandy shale or limestone; very strongly acid.

In most places stratified sandy shale or weathered limestone occurs at depths of 24 to 48 inches. Bedrock is at depths of 6 to 10 feet.

This soil varies in depth to the heavier parent material. A few areas have profiles similar to those of the Inman soils.

This soil is strongly to very strongly acid and is generally low in most plant nutrients, organic matter, and moisture-supplying capacity. Both runoff and internal drainage are medium to rapid. This soil is open and friable and is therefore more leached than the associated soils.

Present use.—Nearly all of this soil has been cleared and used for crops and pasture. Much of it is now idle land or wasteland. A considerable part is in unimproved pasture. Some areas, however, are used for the production of corn, hay, and truck crops. Crop rotation and fertilization are not general practices.

Suitable uses (unit IVe–3).—This soil is very limited in its suitability for row crops. Because of its strong slopes, it is better suited to pasture or hay. In some areas, small grains are suited. Row crops may be grown in long rotations.

Culleoka clay loam, severely eroded moderately steep phase (12 to 25 percent slopes) (Cd).—This soil is similar to the eroded moderately steep phase of Culleoka loam, but it is somewhat shallower and has lost more of the original surface soil through erosion. Small amounts of sandy limestone fragments are on the surface and throughout the soil mass. Shallow gullies are numerous in many areas, but some intergully areas still have part of the original surface layer.

This soil is associated with other steep phases of the Culleoka soils and with the Inman and Hicks soils.

Present use.—Most of this soil is now in unimproved pasture or is idle land or wasteland.

Suitable uses (unit VIe–1).—This soil is not suitable for row crops but should produce fair pasture or hay.

Culleoka flaggy clay loam, severely eroded moderately steep phase (12 to 25 percent slopes) (Ce).—This soil differs from Culleoka loam, eroded moderately steep phase, principally in having larger fragments of sandy shale and limestone on the surface and in the soil mass. It has lost practically all of its original surface soil through erosion, and in places a

number of shallow gullies occur. There is an occasional outcrop of bedrock throughout the soil area.

This soil is associated with the Hicks and Inman soils and with other Culleoka soils.

Present use.—All of this soil has been used for field crops, especially corn. Most of it is now in unimproved pasture or is abandoned. Little attempt is made to improve its productivity.

Suitable uses (unit VIs–1).—This soil is best suited to pasture or forest and should be plowed only to renew stands of pasture. Areas that are rather large should be reforested if pastures are available on other soils.

Culleoka flaggy clay loam, severely eroded steep phase (25 to 60 percent slopes) (Cf).—This soil has developed from the same type of parent material and has many other characteristics similar to the Culleoka loam, eroded moderately steep phase. It differs mainly in having numerous flat, sandy limestone fragments, or flagstones, on the surface and in the soil mass and in having lost practically all the original surface soil through erosion.

In most areas of this soil, the present surface layer is now a mixture of the remaining surface soil and some of the upper subsoil material. Shallow gullies expose the underlying parent material and bedrock in many places. Ledges of bedrock outcrop in many areas.

Included with this soil are small areas where the soil layers are fairly shallow to bedrock and somewhat resemble layers in the Inman soils. Some areas have flagstones that range from 2 to 10 inches in size. A few areas are free of flagstone. These variations do not greatly affect the use suitability of the soil areas.

Nearly all areas of Culleoka flaggy clay loam, severely eroded steep phase, are in the hilly east-central part of the county. They are associated with other sloping to steep Culleoka and Inman soils.

Present use.—Most areas of this soil are now idle or in unimproved pasture that produces very low yields. All of this soil has been used for crops and pasture. Erosion has been severe. Corn is generally grown on cropped areas. Corn is followed by lespedeza or the soil is left idle.

Suitable uses (unit VIIs–1).—This severely eroded steep soil is very poorly suited to row crops or pasture. It is best suited to forest. Pastures are difficult to establish and maintain because of very low fertility and droughtiness of the soil.

Culleoka flaggy loam, eroded moderately steep phase (12 to 25 percent slopes) (Cg).—This soil has flat sandy limestone fragments scattered over the surface and throughout the profile, but it is otherwise similar to Culleoka loam, eroded moderately steep phase. It is very permeable, and internal drainage is rapid. Runoff is rapid, but it is retarded to some extent where the limestone fragments or flagstones have collected. In most areas the flagstones range from 2 to 6 inches in length. A few are larger.

This soil occurs in the same areas of the county as the Inman and Hicks soils and the other Culleoka soils and is associated with them.

Present use.—Nearly all of this soil has been cleared and cropped, but most of the areas are now in unimproved pasture or are idle. A small acreage is in forest. Some areas cleared of loose flagstones are used for corn and lespedeza hay.

Suitable uses (unit VIs–1).—Most of this soil is best suited to pasture. More erosion and a rapid decline in crop yields can be expected if the soil is planted to row crops. Production of hay is not very feasible because the stony fragments on the surface hinder mowing and raking. The small forested areas should remain in forest.

Culleoka flaggy loam, eroded steep phase (25 to 60 percent slopes) (Ch).—This soil is similar to Culleoka loam, eroded moderately steep phase, but it has stronger slopes and has lost most of the original surface soil. In addition, it is shallower, has many flagstones on the surface and throughout the profile, and has a few limestone bedrock outcrops.

The present plow layer of this soil consists of remnants of the original surface soil mixed with the upper subsoil. The erosion of the finer soil particles has resulted in the accumulation of flagstones or sandy limestone fragments. These flagstones vary in size from 2 to 10 inches and are numerous enough over most areas to restrict tillage operations.

This soil is strongly acid and low in fertility. Runoff and internal drainage are rapid. When this soil is left bare or idle, runoff is considerable and erosion is increased.

Areas of this soil are associated with areas of other Culleoka soils and areas of Inman soils. Some areas that resemble the Inman soils are included in this mapping unit because of their small extent.

Present use.—Culleoka flaggy loam, eroded steep phase, is used chiefly for unimproved pasture. A considerable acreage is idle, and some is in cutover woodland. In general, little effort has been made to improve the productivity of this soil.

Suitable use (unit VIIs–1).—This soil is considered unsuitable for crops and poorly suited to pasture. Pastures are difficult to establish and maintain because of the strong slopes, loose flagstone on the surface, and low fertility. On most farms this soil should be used for forest.

Dellrose series

The Dellrose soils are well drained. They generally occur on strong slopes leading from the Highland Rim into the Central Basin. The Dellrose soils are generally associated with the Bodine and Frankstown soils on the upper slopes and with cherty Mimosa and Ashwood soils on the lower slopes. They have formed from cherty soil material that has rolled or sloughed from the Mountview, Bodine, and Frankstown soils. This soil material is underlain by limestone at depths ranging from 60 inches to as much as 30 feet.

The Dellrose soils are moderately productive. They are well supplied with phosphorus, which is partly brought in by seepage water from the underlying level-bedded limestones, mostly of the Catheys and Leipers formations. The open, friable, and poorly developed profiles of the Dellrose soils, their moderate to high chert content, and the presence of some weathered shale fragments in the surface layer tend to make the soils of this series only moderately subject to erosion. Because of their strong slopes and cherti-

ness, the Dellrose soils are difficult to work. In some areas large chert fragments on the surface prevent cultivation.

Dellrose cherty silt loam, eroded sloping phase (4 to 12 percent slopes) (Da).—Areas of this soil are fairly extensive in the western part of the county. They also occur on slopes below isolated remnants of the Highland Rim in the outer Central Basin proper.

Representative profile:

0 to 10 inches, dark-brown friable cherty silt loam; medium acid.
10 to 24 inches, strong-brown friable silt loam; contains numerous chert fragments; strongly acid.
24 to 30 inches +, strong-brown to yellowish-brown friable silty clay loam, intermixed with chert of various sizes; strongly acid.

The 24- to 30-inch layer is underlain by mottled yellow and gray cherty silty clay.

In many places the surface layer is somewhat lighter in color than that of the representative profile. Some small areas are in woodland and have had little or only slight erosion. Several areas of reddish-yellow friable silty clay loam that have a moderately well developed subsoil are included with this mapping unit.

This soil is strongly to medium acid, high in phosphorus, and moderately high in content of organic matter. Runoff is medium, and internal drainage is rapid. The rather rapid absorption of water reduces the erosion hazard. In many places, a slow seepage of moisture from the underlying rocks apparently improves the fertility and moisture-supplying capacity of this soil, because crops produce good yields, even during dry seasons. This soil is somewhat difficult to work because of the chert fragments on the surface and throughout the profile. In some areas, the fragments are as large as 10 inches in diameter and are numerous enough to interfere with or prevent tillage.

Present use.—Nearly all of this soil has been cleared and cultivated for some time, but many farmers still consider it highly productive. Corn is the principal row crop; other crops are tobacco, small grains, lespedeza, and pasture. Each year a large part of this soil is idle or in unimproved pasture. Corn is usually grown 1 year, and then the soil is left idle for 2 or 3 years before returning it to corn. Systematic crop rotations and fertilizers are seldom used. Cultivation is generally on the contour.

Suitable uses (unit IIIe–3).—Most crops commonly grown in the county are fairly well suited to this soil, but the chertiness of the soil somewhat limits their production. Rotations can be short but should include a legume.

This soil should be well managed to prevent erosion and maintain fertility. In some places it may be practical to improve workability by removing the larger chert fragments on the surface.

Dellrose cherty silt loam, eroded moderately steep phase (12 to 25 percent slopes) (Db).—This is one of the more extensive soils in the county. It is similar to Dellrose cherty silt loam, eroded sloping phase, except for stronger slopes and a slightly thinner surface layer. Runoff is rapid, and erosion is more active than on the eroded sloping phase. Productivity is somewhat lower. Areas of this soil occur with other Dellrose and associated soils.

Included in this mapping unit are a few small areas that have subsoil that is moderately well developed and redder than usual in this soil. They occur in the southern part of the county. Some areas are included that have larger and more numerous chert fragments. They are best suited to permanent pasture.

Present use.—Practically all of this soil is cleared. A large acreage is planted to corn each year, and other areas are in pasture or idle. Rotations and fertilizers are not generally used.

Suitable uses (unit IVe–3).—This soil is best suited to pasture. Rotations that include row crops should be long and consist mainly of legumes and grasses. Small grains are well suited but should be planted in rotation with hay and pasture.

Dellrose cherty silt loam, severely eroded moderately steep phase (12 to 25 percent slopes) (Dc).—This is one of the less extensive soils in the county. Steeper slopes, more rapid runoff, more severe erosion, and a subsoil shallower over bedrock differentiate this soil from the eroded sloping phase. Practically all the original surface soil has been lost, and many areas have numerous gullies, both shallow and deep. In a few places, short, narrow, horizontal ledges of limestone occur on the surface.

Present use.—All of this soil has been used for crops and pasture for many years. Its use for row crops, principally corn, has caused severe erosion, and consequently there are many idle and abandoned areas. A considerable acreage is used now for pasture, but these areas are generally unimproved and unproductive.

Suitable uses (unit VIe–1).—Mainly because of the steep slopes, severe erosion, and large amount of chert, this soil is best suited to permanent pasture. A good sod-forming pasture mixture is needed to reduce erosion. After pasture has been improved or established, it should remain as long as economically feasible. To prevent injury to pastures and to check further erosion, grazing should be carefully controlled. Large gullies should be stabilized with check dams or tree plantings when pastures are seeded.

Dellrose cherty silt loam, eroded steep phase (25 to 60 percent slopes) (Dd).—Strong slopes and variations in characteristics, especially in thickness of surface and subsoil layers, differentiate this soil from the eroded sloping phase. Runoff is rapid on this soil. Some areas contain severely eroded spots along with a few deep gullies that cannot be crossed, even with light equipment. Narrow ledges of limestone protrude in places. A few uneroded areas included in this mapping unit are still forested.

This soil occurs in large areas throughout the western part of the county. It occupies steep ridge slopes below the nearby Bodine and Frankstown soils.

Present use.—A large acreage of this soil is used for pasture. Many areas are idle or abandoned. A small part is still in forest. Some areas are being used for corn. In some places, poor management in cropping and overgrazing have resulted in severe erosion. Pastures commonly receive no fertilizer or

lime, contain few desirable pasture grasses, and are very low in carrying capacity.

Suitable uses (unit IVe–3).—This soil is best suited to a long rotation or pasture because of its strong slope, susceptibility to further erosion, chertiness, and moderately low fertility. Forested areas probably should not be cleared. Severely eroded areas are best used for forest.

Dickson series

The Dickson series consists of moderately well drained soils of the uplands. These soils do not cover a large acreage. They occupy broad, smooth areas of the Highland Rim in the northwestern and southwestern parts of the county. They have developed in a thin layer of loesslike silt overlying weathered material of the Fort Payne cherty limestone formation. The Dickson soils are associated mainly with the Mountview soils. In the more dissected uplands, however, Bodine soils are on the adjoining slopes.

The Dickson soils have many characteristics similar to the Mountview soils, but they differ from them mainly in having a fragipan layer below the subsoil. They differ from the Bodine soils in having deeper, well-developed, and practically chert-free profiles.

Only one soil is mapped in the Dickson series in Maury County.

Dickson silt loam, eroded gently sloping phase (0 to 5 percent slopes) (De).—The following is a representative profile of this soil:

- 0 to 16 inches, light brownish-gray very friable silt loam; strongly acid.
- 16 to 28 inches, yellowish-brown friable silt loam to silty clay loam; mottles of yellow and gray in lower part; very strongly acid.
- 28 to 36 inches, hard compact silt loam to silty clay loam mottled with gray and yellow; very strongly acid.

The 28- to 36-inch layer is underlain by weathered cherty limestone material.

The chief variation in this soil is in degree of erosion. A few areas are more severely eroded in places and have a thinner surface layer.

This soil is strongly to very strongly acid. It is low in organic matter and plant nutrients. Runoff is medium, but drainage through the soil is slow because it is restricted by the fragipan layer below the subsoil. The surface soil and subsoil are generally chert free, but in some places a few chert fragments are in the fragipan layer. The material below this layer is very cherty. Air and moisture circulate easily throughout the upper soil layers, which are also easily penetrated by plant roots. The pan is only sightly permeable.

Present use.—Practically all of this soil is cleared and for the most part is used for row crops, chiefly corn, cotton, and hay. Very little is idle or in pasture. Crop rotations and fertilizers are used by many farmers. Other management practices on this soil are good but could be improved.

Suitable uses (unit IIe–2).—This soil is low in productivity, but it is easy to work, fairly easy to conserve, and not difficult to keep in a good working condition. Increasing fertility and preventing further erosion are the main management problems. This soil is suited to short rotations that include well-fertilized grass and legume crops. Deep-rooted legumes such as alfalfa are not well suited, although fair stands can be established and maintained for a few years.

Donerail series

The Donerail series consists of moderately well drained soils of the uplands. These soils have developed in materials weathered from phosphatic limestone, mainly limestone of the Bigby and Hermitage formations. They occupy small, gently sloping areas that are somewhat lower than areas of the associated Maury soils. They are also associated with the Mimosa and Braxton soils of the uplands and with the Huntington and Godwin soils of the colluvial lands in the central part of the county.

The Donerail soils are similar to the Maury soils in many characteristics but differ from them in being less well drained. They resemble the Mimosa soils but have a somewhat deeper, more friable subsoil.

Only one soil in the Donerail series is mapped in Maury County.

Donerail silt loam, gently sloping phase (0 to 5 percent slopes) (Df).—This soil occurs in the outer Central Basin.

Representative profile:

- 0 to 10 inches, dark-brown friable silt loam; slightly acid.
- 10 to 20 inches, strong-brown friable silty clay loam; medium acid.
- 20 to 30 inches, reddish-yellow firm silty clay loam to silty clay mottled with yellow and gray; numerous small black concretions; strongly acid.

Mottled yellow and gray clay over limestone at depths of about 3 to 5 feet.

In a few small areas included in this mapping unit, more of the surface soil material has been lost through accelerated erosion than is normal for this soil. In some places the surface soil is lighter in color.

This soil is medium to slightly acid. It is moderate in organic-matter content and in supply of plant nutrients. The surface soil and upper subsoil are permeable to air, roots, and water, but the lower subsoil is not well drained. Runoff and internal drainage are medium to slow.

Present use.—All areas of this soil are cleared and used for pasture, corn, small grains, hay, and other crops. These crops generally are grown in rotation, but are not adequately fertilized. Some areas are planted to row crops for several years and then used for pasture.

Suitable uses (unit IIe–2).—This soil is well suited to most of the common field crops. Its medium to slow internal drainage, however, may prevent its use for deep-rooted legumes such as alfalfa. It is easy to work and conserve, and all types of farm machinery can be used because the slopes are gentle. Rotations can be fairly short but should include a legume crop or a legume-grass mixture.

Dunning series

The Dunning series consists of somewhat poorly drained to poorly drained soils of the creek and river bottoms. They were derived from materials recently washed from soils and rocky areas underlain by clayey limestone. They are associated with Huntington, Egam, and Lindside soils of the bottom lands and the

Talbott soils of the uplands. Along the smaller creeks, they are adjacent to large areas of Rockland.

The Dunning soils are neutral to slightly acid in reaction and have large amounts of organic matter. Poor drainage and heavy texture, however, generally restrict their use for crops. The Dunning soils occurring in the outer Central Basin contain much phosphorus.

The Dunning soils differ from the Burgin soils mainly in occurring along streams that are subject to overflow and in consisting of water-shifted materials. They differ from the associated Egam soils mainly in being darker colored, heavier textured, and more poorly drained.

Dunning and Lindside silty clay loams (0 to 3 percent slopes) (Dh).—The Dunning and Lindside soils in this group occupy level areas along smaller streams in the southeastern part of the county in association with Huntington, Lindside, Egam, and Talbott soils. The two soils are intermingled and in these areas are similar in many characteristics. They are therefore shown together on the soil map as an undifferentiated group. Areas of these soils are generally small and are frequently scoured by swift-moving floodwaters.

Representative profile of Dunning silty clay loam:

0 to 14 inches, very dark gray or almost black, mottled with rust brown and gray, firm silty clay loam; netural in reaction.

14 to 20 inches +, very dark grayish-brown plastic silty clay mottled with yellow, gray, and brown; numerous black concretions; neutral in reaction.

The 14- to 20-inch layer is underlain by clayey limestone.

In many places the depth of these soils to bedrock is less than 20 inches.

The areas of Lindside soil have a surface soil of a texture similar to that described for the surface soil of Dunning silty clay loam. However, the Lindside soil is somewhat lighter colored and better drained than the Dunning soil. A more complete description of a Lindside profile is included under the discussion of the Lindside series. Near Rockland areas, there are local accumulations of small, flat limestone fragments on the surface of the Lindside soil.

The Dunning soil is neutral in reaction and has a large amount of organic matter. Both runoff and internal drainage are slow to very slow. The soil is usually wet during part of the growing season, but the surface layer becomes very dry during long droughts. Roots of most plants are generally confined to the upper soil layers, chiefly because the lower layers are waterlogged.

Present use.—Nearly all areas of this mapping unit are used for hay or pasture; a few are used for corn. There are small acreages in small grains and soybeans. Soil amendments are not often used, nor are practices for improving drainage.

Suitable uses (unit IIIw–1).—The suitability of these soils to row crops is restricted by heavy subsoils, poor drainage, and flooding. They are probably best suited to hay or pasture composed of a legume and grass mixture that can withstand imperfect drainage. Adequate drainage will make them suitable for corn, small grains, and hay, but it will not lessen the hazard of flooding. In many places, open ditches aid in the removal of surface waters.

Dunning silty clay loam, phosphatic phase (0 to 3 percent slopes) (Dg).—This soil differs from the Dunning silty clay loam mainly because it is high in phosphorus and considerably deeper to bedrock. In many places, it has a thin, light brownish-gray silt loam surface soil that consists of recent alluvium washed from eroded upland soils.

The parent material of this soil consists of mixed soil materials washed chiefly from highly phosphatic clayey limestones that underlie the Braxton, Ashwood, Mimosa, and Inman soils of the uplands. This soil generally occurs in low areas along the first bottoms in the outer Central Basin. These areas are frequently covered by slack water after flood periods.

Dunning silty clay loam, phosphatic phase, is closely associated with Huntington, Egam, and Lindside soils of the bottom lands.

Present use.—This soil is planted to much the same crops as Dunning and Lindside silty clay loams. Management practices used do not differ greatly.

Suitable uses (unit IIIw–1).—The suitability of this soil to row crops is restricted by the heavy, poorly drained subsoil and the hazard of floods. It is probably best suited to hay or pasture. If adequately drained, it is productive of corn, sorghum, and soybeans.

Egam series

The Egam soils are moderately well drained to well drained. They occur on high first bottoms along the major streams of the county. They have developed from general stream deposits of fine soil materials washed mainly from uplands that are underlain by limestone. The Egam soils are associated with the Huntington, Lindside, and Dunning soils of the bottoms and with the Armour and Captina soils on the nearby low terraces. These soils have a somewhat heavy textured, compact layer below the surface soil that interferes with penetration of water, air, and plant roots. They are productive soils and have a relatively large amount of organic matter. Crops, however, are likely to be more severely affected by periods of drought on these soils than on the Huntington soils.

The Egam soils, in many respects, are similar to the Huntington soils, but differ in being darker, heavier textured below the surface layer, and somewhat less productive. They are better drained and occupy somewhat higher areas in the bottoms than the dark-colored Dunning soils.

Only one soil is mapped in the Egam series in Maury County.

Egam silty clay loam, phosphatic phase (0 to 3 percent slopes) (Ea).—Much of this soil is on practically level areas that flood annually. Following is a representative profile of this soil:

0 to 5 inches, very dark grayish-brown firm to friable silty clay loam; medium acid.

5 to 20 inches +, dark reddish-brown to almost black compact silty clay loam; contains small brown concretions; plastic when wet, hard when dry; medium acid; mottled in lower part with yellow and gray.

In areas subject to periodic swift overflow, the soil

lacks the top few inches of friable soil material. These areas are somewhat black in color. A few small areas of Huntington and Lindside soils may be included in this mapping unit because the gradual transitions among the soils were difficult to show on the map.

This soil is medium acid, contains a moderate amount of organic matter, and is high in many plant nutrients, particularly phosphorus. Runoff is slow, and internal drainage is moderately slow, but the soil dries in time for planting after floods.

Present use.—All of this soil is cleared and used chiefly for corn. A small acreage is used for small grains and hay. Very little is idle. Fertilizers and lime are hardly ever used, and little special management is given to this soil.

Suitable uses (unit IIw–1).—This soil is moderately productive and suited to intensive use. But its suitability is limited to some extent by the compact, somewhat droughty subsoil layers and periodic flooding. A good management program should include the selection of moderately drought-resistant crops as well as improved seedbed preparation and cultivation. Corn is well suited, but small grains may give higher yields.

Often the seedbed on this soil is not properly prepared because plowing is poorly timed. The moisture range for satisfactory tillage is narrow.

Emory series

The Emory series consists of well-drained soils of the colluvial lands. They are not extensive soils, and they occupy areas at the foot of slopes and along narrow drainageways. They have developed from accumulations of soil material that came from adjacent slopes of Hagerstown and Talbott soils. Small areas of the Emory soils occur in the eastern part of the county in association with soils of the inner Central Basin.

The Emory soils are darker and somewhat less developed than the Hermitage soils. In many characteristics they are similar to the Huntington soils, but they are more red than brown and are not so frequently flooded or ponded.

Only one soil of the Emory series is mapped in Maury County.

Emory silt loam, gently sloping phase (0 to 6 percent slopes) (Eb).—This soil is limited chiefly to the eastern part of the county, in the inner Central Basin. Few slopes are greater than 3 percent.

Representative profile:

0 to 14 inches, reddish-brown friable silt loam; slightly acid.

14 to 24 inches +, yellowish-red friable silt loam or silty clay loam splotched with brown and yellow; has a few black concretions and finely weathered fragments of parent material in the lower part.

Depth to limestone bedrock ranges from 3 to 6 feet.

A few small areas that have some fine chert fragments on the surface are included with this mapping unit. Also included are areas that have been covered by a thin layer of subsoil material recently washed from severely eroded upland soils.

This soil is slightly acid and has a moderately high amount of organic matter. It is very productive, easily worked, and suited to intensive use. Runoff and internal drainage are medium. The moisture-supplying capacity is high.

Present use.—Nearly all of this soil is used for crops and pasture. It is generally farmed along with other soils. A few areas are used separately, especially those that are adjacent to severely eroded or abandoned areas. Corn is the principal crop, and although fertilizers are not commonly used, yields are fairly high.

Suitable uses (unit I–1).—This soil is well suited to intensive production of row crops. Short rotations can be used.

This soil does not have exacting management requirements, as little erosion takes place, but it should be protected from subsoil deposits that are washed from adjacent severely eroded areas.

Etowah series

The Etowah soils have developed on well-drained, fairly high terraces in the main valley along the Duck River and, to a lesser extent, along the lower reaches of the major creeks. They were formed from stream sediments washed from soils underlain chiefly by high-grade limestone. These alluvial sediments were deposited near the streams before they had cut down to their present channels, as the terraces on which they now occur are above the present area of overflow. The Etowah soils are associated mainly with the Armour and Captina soils that occupy lower terraces on the inside bends of creeks and rivers. They also occur with many upland soils in the county. The Etowah soils in the outer Central Basin are phosphatic. The higher areas of these soils contain less phosphorus than the somewhat lower areas.

The Etowah soils were derived from parent materials similar to those of the Armour soils. Generally, however, their surface layer is less brown and their subsoil is redder. The Etowah soils are better drained and have browner surface soil and redder subsoil than the pan soils of the Captina series.

Etowah silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Ef).—This soil is in the eastern part of the county in the inner Central Basin. The areas are small and mostly are along the Duck River in a belt that extends about a mile back from the river. This soil is closely associated with other Etowah soils, with the phosphatic Armour soils on lower terraces, and with the Hagerstown and Talbott soils of the uplands. It is very important agriculturally because it generally occurs in areas comprised of soils and miscellaneous land types having very limited suitability for use.

Representative profile:

0 to 10 inches, brown to light-brown friable silt loam; medium acid.

10 to 20 inches, yellowish-red friable silty clay loam; contains a few brown concretions; strongly acid.

20 to 36 inches +, red to light-red firm silty clay loam; contains small black concretions and rounded gravel in lower part; strongly acid.

Limestone is at depths of 5 to 20 feet.

In places rounded gravel (fig. 13) occurs in small spots on the surface; these areas are shown on the map by the proper symbol. Included in this mapping

Figure 13.—**Irregular gravel deposits in substratum below subsoil of Etowah silt loam, eroded gently sloping phase.**

unit are a few areas that have lost most of the original surface soil.

This soil is medium acid and moderately to highly productive. The amount of organic matter, however, has been reduced because of intensive cropping and erosion. Runoff and internal drainage are medium. The soil is readily permeable to air, plant roots, and water.

Present use.—All this soil has been cleared and cropped intensively. Very little acreage is used for pasture, and very little is idle. Few special practices are used for checking erosion or improving the soil's productivity.

Suitable uses (unit IIe–1).—This soil is physically well suited to a wide variety of crops and to pasture. It is responsive to good management. Comparatively high productivity can be maintained under a short rotation that includes a legume crop, preferably a deep-rooted one.

Etowah silt loam, eroded gently sloping phosphatic phase (0 to 5 percent slopes) (Eg).—Except for containing a medium to large amount of phosphorus, this soil differs little from Etowah silt loam, eroded gently sloping phase, and variations in characteristics within this soil are similar to those described for that phase. It is associated with the phosphatic Armour soils on low terraces along streams and with many other soils in the outer Central Basin. It occurs in an irregular belt of terrace deposits about a mile wide. This belt adjoins the Duck River throughout its course in the outer Central Basin.

Present use.—This soil is well suited to the production of crops and is nearly all cultivated. The soil is closely associated with the eroded sloping phosphatic phase, and the two soils are generally used and managed together. Crops are commonly rotated, but not in proper sequence. Small to moderate quantities of soil amendments are used.

Suitable uses (unit IIe–1).—This productive soil is easy to work and moderately easy to conserve. Under good management, corn, tobacco, grass and legume hay, small grains, and other crops can be grown successfully. Applications of phosphate generally are not needed for crops.

Etowah silt loam, eroded sloping phosphatic phase (5 to 12 percent slopes) (Eh).—This soil has a greater amount of phosphorus, is more eroded, and occupies steeper slopes than Etowah silt loam, eroded gently sloping phase. Except for these differences, the two soils are essentially the same. This soil is associated with other Etowah soils and with the Armour soils of the low terraces.

Present use.—All areas of this soil are used for crops and pasture. On many farms systematic rotations are used and fertilizers are applied in moderate amounts. Generally row crops should be grown less frequently than they now are.

Suitable uses (unit IIIe–1).—This soil is productive and well suited to most all the field crops commonly grown in the county. A rotation of moderate length that includes a deep-rooted legume is desirable. Rotations should be longer than on Etowah silt loam, eroded gently sloping phase.

Etowah gravelly silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Ec).—This soil differs from Etowah silt loam, eroded gently sloping phase, chiefly in having lost most of the original surface soil and part of the upper subsoil through erosion. The finer soil materials have been removed, and an accumulation of waterworn pebbles has been left on the surface. In places there is enough gravel to interfere materially with cultivation. Sheet erosion has been severe. In many places limestone outcrops occur at the base of slopes. Runoff is medium to rapid, but internal drainage is medium to slow. This soil is generally strongly acid, lacks organic matter, and is somewhat droughty.

This soil is associated with Etowah silt loam, eroded gently sloping phase, and was derived from the same type of parent material. It occurs in the eastern part of the county on the higher terrace levels near the present course of the Duck River.

Present use.—All this soil has been used for crops

or pasture. A large acreage is now used for row crops, small grains, and hay. A few areas are idle or abandoned. Because this soil frequently occurs adjacent to rockland and soils somewhat shallow to bedrock, it has been intensively cropped through necessity. Although the soil was originally suited to many different crops, severe erosion resulting from poor use and management has limited its suitability for use.

Suitable uses (unit IIIe–1).—This soil is suited to crops requiring tillage. Because of the high content of pebbles and poor tilth, however, it is probably best suited to semipermanent hay crops or pasture. Good pasture or hay crops can be established and maintained. The areas having a few shallow gullies and outcrops of limestone bedrock should be used for permanent pasture.

Etowah gravelly silty clay loam, severely eroded sloping phosphatic phase (5 to 12 percent slopes) (Ed).—The profile of this soil is similar to that of Etowah silt loam, eroded gently sloping phase, except that most of the upper soil layer has been eroded away. The present plow layer contains gravel, which increases with depth. This layer is generally a mixture of the subsoil and the remaining surface soil. In many places it consists entirely of subsoil material.

Limestone rock outcrops are at the base of slopes in many places. Where there are a few pockets of gravel, the profile is lighter in color, very low in organic matter, very strongly acid, and droughty. Among the variations mapped with this soil are a few areas that have a darker red subsoil.

This soil occurs with other phosphatic soils and was derived from the same kind of parent material.

Present use.—All of this soil has been used for crops and pasture. Some of it is now idle, and some is in unimproved pasture. Most areas, however, are still used for crops and are managed along with more level Etowah soils. This management increases the possibility of further erosion. Crop yields are very low. In many places soil improvement or maintenance is not being attempted.

Suitable uses (unit IIIe–1).—This soil is physically suited to crops requiring tillage. Because of its gravel content and poor tilth, it is best suited to semipermanent hay crops or pasture. Areas that have rock outcrops and shallow gullies should be used for permanent pasture. Management requirements are similar to those for the severely eroded sloping phase.

Etowah gravelly silty clay loam, severely eroded moderately steep phosphatic phase (12 to 25 percent slopes) (Ee).—This soil differs from Etowah silt loam, eroded gently sloping phosphatic phase, chiefly in that most of the upper soil layer has been removed by erosion and the phosphatic subsoil layer is thinner and contains more gravel. Shallow gullies are common in many areas, and outcrops of limestone are numerous. This soil occurs on the hilly parts of the high terraces along the river and creek valleys in the outer Central Basin. It generally occupies short, fairly steep slopes adjacent to and above the Armour soils on the lower terraces. It is at slightly lower elevations than other phases of the Etowah soils. A few less severely eroded areas are mapped with this soil.

Present use.—All of Etowah gravelly silty clay loam, severely eroded moderately steep phosphatic phase, has been cleared and used for crops and pasture. Because of the severe erosion resulting from poor use and management, most of the soil is now idle or in unimproved pasture.

Suitable uses (unit IVe–1).—This soil is not suitable for row crops, because of its strong eroded slopes, gravel content, and droughtiness. It is probably best suited to permanent hay or pasture. In many places runoff should be diverted from these areas to retain the productivity of more fertile soils at lower elevations.

Frankstown series

The Frankstown soils have developed in materials weathered from the Fort Payne chert formation and underlying phosphatic shales. They occupy the tops and upper slopes of ridges and knobs along the border of the Highland Rim and are on most of the high knolls, hills, and ridges that extend into the Central Basin. These soils are associated with the Dellrose, Ashwood, and cherty Mimosa soils on the lower ridge slopes.

Those soils on gently rolling slopes are moderately productive and suited to crops, but because of the chert content, they are somewhat difficult to work. The chert fragments usually range from 1 to 4 inches in diameter. The content of phosphorus and potassium varies. In many places the soils have a medium to large amount of phosphorus and a medium amount of potassium.

The Frankstown soils are more brown and more cherty than the Mountview soils. The Bodine soils differ from the Frankstown soils in being shallower to parent material, in containing little or no phosphorus, and in being less productive.

Frankstown cherty silt loam, eroded sloping phase (4 to 12 percent slopes) (Fa).—This soil occurs in long, narrow strips on rolling ridgetops and on the tops of high ridges and hills. It is associated with other Frankstown soils and with the Dellrose, Ashwood, and cherty Mimosa soils on the lower ridge slopes. In the western part of the county the Bodine and Mountview soils are on nearby higher ridgetops.

Representative profile:

0 to 8 inches, brown to yellowish-brown friable silt loam; contains chert and shale fragments; medium to strongly acid.

8 to 16 inches, strong-brown friable silt loam; contains a few brown concretions and fragments; strongly acid.

16 to 30 inches +, reddish-yellow firm silty clay loam; splotches of rust brown and gray in lower part; very cherty; strongly acid.

The 16- to 30-inch layer is underlain by weathered cherty limestone material and phosphatic shale.

The thickness of the surface layer varies. In places it is only a few inches thick. Heavily cropped areas have a lighter colored surface soil in some places. A few small areas have a chert-free plow layer and are more nearly level than the rest of the soil. Also included are a few small, isolated, uneroded areas that are still in forest.

This soil is medium to strongly acid and has a moderate amount of phosphorus and potassium. Runoff

is medium and internal drainage is medium to rapid Enough fragments of chert and weathered shale are on the surface and throughout the soil to interfere with cultivation.

Present use.—This soil is generally used for the production of corn, small grains, and hay. A part is used for pasture. Many areas are idle each year. Management does not include practices to conserve the soil or to improve its productivity. Ordinarily, no special methods for erosion control are used.

Suitable uses (unit IIIe–3).—This eroded sloping soil has moderate to low productivity. However, it is suited to many of the crops grown in the county if properly managed. Rotations consisting of corn, small grains, and legume hay are well suited if the crops are grown in the sequence named.

Frankstown cherty silt loam, moderately steep phase (12 to 25 percent slopes) (Fb).—This soil differs from the eroded sloping phase of Frankstown cherty silt loam mainly in having stronger slopes and in being shallower to bedrock. It occurs on the upper ridge slopes, largely in the western and southern parts of the county. Associated with this soil are other Frankstown soils and soils of the Dellrose and Mimosa series.

Present use.—Most of this soil is in forest. The present yield of timber from the cutover forest is small and of poor quality.

Suitable uses (unit IVe–2).—Because of its strong slope, chertiness, and somewhat excessive drainage, this soil is not suited to tilled crops. It is suited to permanent pasture. The better areas can be used for hay.

Frankstown cherty silt loam, eroded moderately steep phase (12 to 25 percent slopes) (Fc).—This soil is scattered throughout the western and south-central parts of the county. Stronger slopes and a shallower depth to bedrock are the chief differences between it and the associated Frankstown cherty silt loam, eroded sloping phase. In a few areas severe erosion has removed most of the original surface soil and left enough chert fragments on the surface to restrict tillage.

Present use.—Most of the areas of this soil are forested.

Suitable uses (unit IVe–2).—Strong slopes, chertiness, and rapid runoff limit the use of this soil. Although crop yields have been fair in the past, further erosion and a decline in yields can be expected if the soil continues to be planted to tilled crops. This soil is best suited to permanent pasture or perennial hay crops. A mixture of grasses and legumes suited to a range in moisture conditions, and particularly to droughtiness, will insure the longest possible grazing season. Where hay crops are to be grown, the larger chert fragments on the surface should be removed to make harvesting less difficult.

Frankstown coarse cherty silt loam, sloping phase (4 to 12 percent slopes) (Fd).—This soil occurs in the same parts of the county and is associated with the same soils as Frankstown cherty silt loam, eroded sloping phase. It differs from that soil mainly in having more organic matter in the surface layer and an abundance of large chert fragments, normally 2 to 10 inches in diameter, on the surface and throughout the profile.

Present use.—All of this soil is now in cutover forest. Management practices for increasing the yield and quality of timber are not generally used. Much of the forest is not protected from livestock grazing.

Suitable uses (unit VIs–1).—Because of its content of coarse chert and moderately low productivity, this soil is poorly suited to crops. Many areas are in close association with hilly and steep Frankstown soils that are not suited to cultivation. Access to these areas is difficult. This further limits the soil's use for farming. Many areas are best left in forest. Cleared areas, however, should produce fair pasture under proper management.

Frankstown coarse cherty silt loam, eroded sloping phase (4 to 12 percent slopes) (Fe).—This fairly extensive soil differs from Frankstown cherty silt loam, eroded sloping phase, in containing larger and more abundant chert fragments, from 2 to 10 inches in diameter, and in having a somewhat thinner surface soil and subsoil. It is associated with the same soils.

Present use.—This soil is moderately low in productivity. Most of it is in unimproved pasture or is idle. Because of the amount of coarse chert, this soil is not generally used for crops requiring tillage. A few areas, through necessity, are intensively used for corn, tobacco, small grains, and hay crops. Crops are not systematically rotated. Corn and tobacco receive moderate quantities of fertilizer and barnyard manure.

Suitable uses (unit VIs–1).—This soil has limited value as cropland but should produce good pasture and hay.

Frankstown coarse cherty silt loam, moderately steep phase (12 to 25 percent slopes) (Ff).—This soil has stronger slopes, is more cherty, and is slightly shallower to bedrock than Frankstown cherty silt loam, eroded sloping phase. Also the upper part of its surface soil is darker brown and has a fairly large amount of organic matter.

This soil occurs in forested areas on the upper slopes of ridges in the northern, western, and south-central parts of the county. It is associated with other phases of Frankstown soils.

Present use.—All of this soil is now in cutover forest. The timber has little value, except for use as fence posts. Most areas are grazed, and a few are burned annually.

Suitable uses (unit VIs–1).—Because of its strong slopes, chertiness, strong acidity, and low natural fertility, this soil is not suited to tilled crops. Under good management it makes fair pasture. Much of the land is best used for timber production.

Frankstown coarse cherty silt loam, eroded moderately steep phase (12 to 25 percent slopes) (Fg).—Stronger slopes, shallower depth to bedrock, and a larger amount of angular chert fragments on the surface and throughout the profile are the chief differences between this soil and the associated Frankstown cherty silt loam, eroded sloping phase. The amount of chert in the plow layer varies somewhat but in practically all places is enough to restrict tillage operations. This soil occurs in small areas and is scattered

throughout the cherty hills of the outer Central Basin A few areas included in this mapping unit have been so severely eroded that most of the original surface soil has been lost.

Present use.—Most areas of this soil are now being used for pasture. Some are idle or abandoned.

Suitable uses (unit VIs–1).—This soil is not suited to the production of intertilled field crops. Although fair crops have been produced in the past, further erosion and a decline in yields can be expected if the soil is continued in tilled crops. Pasture is probably best suited. Drought-resistant pasture plants should be seeded. Even under good management, pasture yields are normally not very high. Some isolated areas of this soil should be reforested.

Frankstown coarse cherty silt loam, steep phase (25 to 60 percent slopes) (Fh).—This soil has stronger slopes, is shallower, and has more and larger angular chert fragments on the surface and throughout the profile than the eroded sloping phase of Frankstown cherty silt loam. In a few places, shallow gullies and exposed bedrock are common. A few small areas of Dellrose soils are included, as the boundaries were not distinct under forest cover.

Present use.—Most areas of this soil are still forested. Some areas were cleared and used for crops and pasture. Most cleared areas are now temporarily idle, abandoned, or in unimproved pasture. A few are used for corn, but yields are very low.

Suitable uses (unit VIIs–1).—This soil is not suited to crops and is poorly suited to pasture. Forest is best suited because of the strong slopes, chertiness, and low fertility of the soil. Wooded areas should remain in forest. These areas need improved fire protection, as well as trees of better quality.

Godwin series

The dark-colored, moderately well drained to well drained Godwin soils occur at the foot of slopes and along small local drainageways. These soils consist of recent local deposits washed from upland soils underlain by phosphatic limestone. They are mostly in the outer Central Basin and are associated mainly with the Maury, Braxton, and Mimosa soils of the uplands and with the Huntington and Burgin soils of the colluvial lands. The Godwin soils are slightly acid to neutral in reaction and have very large amounts of phosphorus and organic matter.

The Godwin soils occupy positions similar to those occupied by the Emory soils, but they are darker in color, are more alkaline, and contain a larger amount of phosphorus. They differ from the Burgin soils in being better drained and lighter in texture.

Only one soil in the Godwin series is mapped in Maury County.

Godwin silt loam (0 to 6 percent slopes) (Ga).—This soil was derived from material washed mainly from the associated Maury, Braxton, and Mimosa soils. Areas are scattered throughout the outer Central Basin of the county along with the better drained Huntington soils and the more poorly drained Burgin soils.

Representative profile:

0 to 4 inches, very dark gray friable silt loam; nearly neutral.
4 to 18 inches, black firm silt loam to silty clay loam; slightly acid.
18 to 30 inches +, black firm silty clay to silty clay loam splotched with gray and rust brown; contains small weathered limestone fragments and brown concretions; slightly acid.

Weathered phosphatic limestone is at depths of 3 to 4 feet.

The depth to bedrock varies, but it is generally more than 30 inches. The mottled subsoil is at shallower depths in a few places but is normally 18 inches or more below the surface.

Both runoff and internal drainage are medium to slow, but the soil will produce most field crops commonly grown. The soil is easily worked, though it will become cloddy if worked when too moist.

Present use.—Practically all this soil is used for crops. Corn, tobacco, small grains, and hay are the most common field crops. In many places this soil is used and managed with the adjacent upland soils. In some areas corn or hay crops are grown continuously for many years.

Suitable uses (unit IIw–1).—This soil is suited to a number of crops, but is not well suited to alfalfa. Although it can be used continuously for row crops without being seriously injured, its productivity can be maintained or increased by using short rotations that include legumes. Plowing at the proper time in order to maintain a good tilth and applying the proper fertilizers for the crops grown are the chief management requirements.

Greendale series

The soils of the Greendale series are light colored and well drained to moderately well drained. They occur along small drainageways in the Highland Rim area and have developed from accumulations of materials washed from Dickson and Mountview soils underlain by cherty limestone. They occupy small areas and are widely distributed throughout the northwestern and southwestern parts of the county.

The Greendale soils are suited to intensive use. They are moderately productive, but they are medium to strongly acid and low in plant nutrients. The surface soil contains more organic matter than the corresponding layer in surrounding upland soils.

The Greendale soils have developed from the same type of parent materials as the Pace soils. They differ from them in having a thicker surface layer and in occupying more level areas of recent local accumulations.

Only one soil of the Greendale series is mapped in Maury County.

Greendale silt loam (0 to 6 percent slopes) (Gb).—This soil is associated with the Pace soils. It was derived from cherty limestone that, in places, has been mixed with windblown silty material. Slopes are generally not more than 2 to 3 percent.

Representative profile:

0 to 10 inches, light yellowish-brown very friable silt loam; medium acid.
10 to 14 inches, yellowish-brown friable silt loam; slightly brittle when dry; strongly acid.
14 to 24 inches +, strong-brown, splotched with yellow and gray, friable silty clay loam; some black concretions and small chert fragments in lower part; very strongly acid.

The 14- to 24-inch layer is underlain by cherty limestone material.

In some places a few chert fragments are throughout the profile; in others the yellow and gray mottlings in the lower subsoil are lacking. There are some small, somewhat poorly drained areas.

This soil is medium to strongly acid and has a small amount of organic matter and plant nutrients. It is easily maintained in good working condition, is very responsive to management, and is easy to conserve. Through most of the year, the soil is generally well drained. During wet seasons, however, the water table is near the surface for short periods.

Present use.—All this soil has been cleared and cropped for many years. Corn, tobacco, small grains, and garden vegetables are the most important crops now grown. Rotations are seldom used. Fertilizers are commonly used only on tobacco and farm gardens.

Suitable uses (unit I–1).—This soil is easily worked and is well suited to intensive use for row crops. Moisture conditions are generally favorable for all crops, and plant roots easily penetrate to all depths. Under careful management, a row crop generally can be grown continuously, but it should be followed by a cover crop to increase the amount of organic matter and the general productivity of the soil.

Gullied land

Gullied land (5 to 12 percent slopes) (Gc).—Areas of this miscellaneous land type are generally less than 5 acres in size and occur in the more rolling parts of the inner Central Basin. In places the slopes are either above or below the 5 to 12 percent range.

Most of Gullied land consists of Hagerstown and Talbott soils that were so improperly used and mismanaged that erosion removed most of the original surface soil and subsoil. The soil material now exposed consists chiefly of mottled reddish-yellow silty clay or clay. Runoff is very rapid. Gullies cutting to bedrock are common in many places.

Present use.—Practically all areas of this land type have been abandoned. Some have naturally seeded to broomsedge and to cedar and a few other trees.

Suitable uses (unit VIIe–1).—This land type is so eroded that reclamation for crops or pasture is difficult. It should be reforested with desirable species of trees where erosion has not been stabilized by natural seeding. Areas where erosion is still active should be carefully managed; otherwise gullies will extend into the adjacent uplands, and heavy soil materials will be deposited over the more productive colluvial lands and bottom lands. It may be profitable to reclaim areas of Gullied land on farms that require additional pasture or cropland. Very careful management is required to prevent further erosion on reclaimed areas.

Gullied land, phosphatic (12 to 25 percent slopes) (Gd).—This land type is most common on hilly relief. However, slopes in excess of 25 percent occur in many places, and in some areas they are as low as 5 percent. Most areas of this land type are less than 10 acres in size. They are widely distributed over the central part of the county in the outer Central Basin.

This land type has been so eroded that practically all of the former soil layers have been removed and gullies have cut well down into the subsoil. Most areas now consist of moderately heavy textured phosphatic soil material similar to that under the Mimosa, Braxton, and Inman soils. This land type is underlain by phosphatic limestone. Runoff is very rapid, and in many areas bedrock exposures are common.

Present use.—Gullied land, phosphatic, has been cultivated and managed like the surrounding soils. It has been so gullied that reclamation for crops and pasture would be impractical. Most areas now are idle or abandoned and support a growth of native grasses, black locust, or small scrubby trees. A few places are bare except for the broomsedge that grows on the strips between the gullies.

Suitable uses (unit VIIe–1).—Forest is the best use for this land type. In most places a suitable forest cover will generally establish itself more easily than in similar areas in the inner Central Basin. Pines, and black locust and other deciduous trees reestablish themselves rather quickly in these phosphatic gullied areas through natural seeding. In those areas where erosion is still active, trees should be established to control further erosion and to prevent gullies from spreading to other areas. A few areas, especially those where slopes are not very steep, probably should be reclaimed and used for permanent pasture.

Hagerstown series

The Hagerstown series consists of well-drained soils that have developed from materials that weathered from limestone. They occupy gently sloping to rolling uplands in the inner Central Basin, mainly in the northeastern and eastern parts of the county. They are associated with the Talbott and Pickaway soils and with Rockland. Hagerstown soils have deep profiles and are very productive. The underlying limestone is chiefly of the Carters and Ridley formations. In the extreme eastern part of the county, some areas are shallower to bedrock and outcrops of limestone are common.

The Hagerstown soils are similar to the Maury soils in many respects, but they are more acid, less brown in the surface layer, and lower in phosphorus. The Talbott soils, compared with the Hagerstown soils, are shallower to bedrock and have a finer textured subsoil. The Pickaway soils are lighter in color and less well drained.

Hagerstown silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Ha).—This soil is associated with other Hagerstown soils and with the Talbott and Pickaway soils. It is on smooth ridge crests that are slightly higher than those occupied by the associated soils.

Representative profile:

0 to 10 inches, brown friable silt loam; medium acid.
10 to 30 inches, yellowish-red friable silty clay loam; numerous small black concretions; strongly acid.
30 to 40 inches +, mottled yellowish-red firm silty clay loam to silty clay.

High-grade limestone occurs at depths of 4 to 8 feet.

In some places the surface soil is somewhat lighter colored and the lower subsoil is plastic and contains some chert fragments. In these areas the soil closely resembles the Talbott soils.

This soil is medium acid and, for the most part, contains a moderate amount of organic matter. Good tilth can be maintained fairly easily, and practically all types of farm machinery can be used. The supply of moisture is generally favorable for most crops.

Present use.—All this soil has been cleared and is now used mostly for row crops. A few small areas are in pasture. Moderate amounts of fertilizer are used for corn and tobacco. Pasture yields are high, compared to those obtained on other upland soils of the area.

Suitable uses (unit IIe–1).—This soil is well suited to most of the crops commonly grown in the area. Crop rotations of medium length should be used to prevent further erosion and to maintain fertility.

Hagerstown silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Hb).—This soil differs from the eroded gently sloping phase of Hagerstown silt loam in slope and erosion. In most places tillage has mixed the subsoil with the remaining surface soil. In a few places all the surface soil and part of the subsoil have been lost. Many areas have a few shallow gullies, and in places there are a few small outcrops of limestone bedrock.

This soil is generally strongly acid and low in humus and plant nutrients. Runoff is somewhat rapid, but internal drainage is medium.

This soil occurs in the southeastern part of the county in association with the Talbott soils and with Rockland.

Present use.—All this soil has been used fairly intensively for corn, tobacco, and other row crops. Many areas now are in pasture and hay. Some areas are occasionally used for corn and small grains and then left idle for a few years to be further damaged by erosion.

Suitable uses (unit IIIe–1).—A 3- or 4-year crop rotation that includes close-growing crops is needed on this soil to control erosion and to increase and maintain its fertility. Even though the soil is unproductive, it responds well to management. Excellent grass-legume pastures can be established on this soil.

Hagerstown rocky silty clay loam, eroded gently sloping phase (0 to 5 percent slopes) (Hc).—This soil differs from Hagerstown silt loam, eroded gently sloping phase, in having outcrops of limestone bedrock and in places in having small fragments of limestone on the surface. Near the outcrops this soil is somewhat shallower, and the subsoil more red. This soil occurs on small areas, mostly in the extreme eastern part of the county. It is associated with the Talbott soils and with Rockland. Slopes are mainly in the range of 2 to 3 percent.

Present use.—All of this soil has been cleared, and most of it is in cultivation. Crops and management are about the same as those on Hagerstown silt loam, eroded gently sloping phase, except that small grains are generally grown more often. Rock outcrops interfere with tillage, but they are usually bypassed.

Suitable uses (unit IVs–1).—Because of its rockiness, this soil is best suited to small grains, hay, and pasture. In places the soil areas between outcrops are large enough to be used for row crops. The management is similar to that suggested for Hagerstown silt loam, eroded gently sloping phase, except that rotations should include more hay or pasture.

Hampshire series

The Hampshire series consists of light-colored, moderately well drained to well drained phosphatic soils. They occupy gently sloping to sloping areas in association with the Hicks, Inman, and Culleoka soils. They have developed from materials that weathered from the more shaly part of Hermitage limestone.

The Hampshire soils are strongly acid, low in productivity, and very erosive. They are moderately deep. Their most outstanding characteristic is a heavy, firm subsoil that is sticky when wet and hard when dry. Where eroded, these soils are hard to work and are droughty.

The Hampshire soils differ from the Inman soils in having a deeper and better developed subsoil. The Hicks soils, compared to the Hampshire soils, have a more open and friable surface soil and subsoil. In addition the subsoil contains sandy spots. In many places the Hampshire soils are so closely associated with the Inman soils that it is difficult to map them separately.

Only one soil of the Hampshire series was mapped in Maury County.

Hampshire silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Hd).—This soil occupies gentle slopes in the hilly east-central part of the county. It also occurs as small areas around the town of Hampshire, where the underlying rocks are interbedded limestone and shale.

Representative profile:

0 to 10 inches, light yellowish-brown friable silt loam; strongly acid.

10 to 20 inches, strong-brown, firm, heavy silty clay loam to silty clay; strongly acid.

20 to 30 inches, yellowish-brown firm silty clay loam or silty clay mottled with yellow and gray; rounded concretions and weathered fragments of shale.

The depth of the soil to yellow clay and to weathered phosphatic shale and limestone varies from 2 to 7 feet. In some areas small fragments of shale or limestone are scattered throughout the soil mass.

This soil is strongly acid and low in plant nutrients other than phosphorus. It is generally moderately well drained. Runoff is medium, but internal drainage is slow. The firm, heavy subsoil increases erosion, and it restricts the movement of water, air, and plant roots through the soil.

Present use.—All the areas have been cleared and cropped. Many are now used for pasture or left idle each year. Most crops common to the area are grown, but rotations are not commonly used. Cash crops are generally fertilized.

Suitable uses (unit IIe–3).—This soil is low in productivity, and most all crops should be fertilized. At least 2- or 3-year rotations should be used, and they ought to include deep-rooted legumes to improve the tilth of the subsoil.

Hermitage series

The Hermitage series consists of well-drained soils with moderately developed profiles. These soils occur at the base of upland slopes in the inner Central Basin

area. They have formed from old alluvial materials that washed mainly from the Hagerstown and Talbott soils. They are highly productive, easily tilled, and permeable to air, plant roots, and water.

The Hermitage soils differ from the Emory soils in having a better developed profile and in occupying stronger slopes. They are similar to the Armour soils but are redder in color and low in phosphorus.

Hermitage silt loam, eroded gently sloping phase (0 to 5 percent slopes) (He).—This soil is not very extensive, and it occurs in the eastern part of the county.

Representative profile:

0 to 12 inches, dark-brown friable silt loam; slightly acid.
12 to 24 inches +, yellowish-red to strong-brown friable silt loam to silty clay loam; small brown round concretions in lower part; medium acid.

The 12- to 24-inch layer is underlain by heavier soil material that contains small fragments of chert and grades to limestone at depths of 30 to 60 inches.

Included in this mapping unit are a few areas that have had little or no erosion. In places subsoil washed from severely eroded or gullied slopes covers the soil and has changed the surface soil somewhat. A few small areas contain mottlings in the lower subsoil.

This soil is highly productive and can be conserved with little difficulty. It is slightly to medium acid and contains moderate amounts of organic matter and plant nutrients.

Present use.—Practically all this soil has been intensively cropped, and some surface soil has been lost through erosion in excess of that received from surrounding upland soils. Almost all the crops common to the region are grown. Large areas of this soil are farmed separately, but smaller areas are generally used and managed like other upland soils in the same field. Very few areas are in permanent pasture. Moderate amounts of fertilizer are used for corn and tobacco, but rotations and the control of erosion are not practiced to any degree.

Suitable uses (unit IIe–1).—This is an important agricultural soil, and it is suitable for practically all crops commonly grown in the county. High yields of corn and tobacco can be expected under proper management. Small grains and hay crops produce exceptionally good yields if properly fertilized. Legumes grown in short rotations with other crops will improve the soil and increase its productivity.

Hermitage silt loam, eroded sloping phase (5 to 12 percent slopes) (Hf).—This soil occupies stronger slopes and is more susceptible to erosion than the eroded gently sloping phase of Hermitage silt loam. It also has other less favorable features that are associated with its stronger slopes. Erosion has exposed the subsoil in a few small areas and formed a few shallow gullies. This soil is moderately productive. Runoff and internal drainage are medium.

This soil occurs in the inner Central Basin in association with the Hagerstown, Talbott, and Emory soils.

Present use.—The same kinds of crops are grown on this soil as on the eroded gently sloping phase, but the yields are somewhat lower. This soil is lower in fertility because erosion has removed much of the original surface layer.

Suitable uses (unit IIIe–1).—In most places this soil is suitable for row crops, but they should be in a 2- or 3-year rotation that includes close-growing crops.

Hicks series

The Hicks series consists of well-drained, light-colored, phosphatic soils. These soils are on the rolling ridgetops in the east-central part of the county, generally along the eastern edge of the outer Central Basin. They have developed from materials that weathered from phosphatic sandy limestone or interbedded limestone and sandy shale of the Hermitage formation. They are associated with the Hampshire and Inman soils and with the more friable Culleoka soils on the nearby steeper slopes.

The Hicks soils are strongly leached of carbonates, and they are generally low in productivity. Most places are relatively free of fragments of flat limestone or flags, but in a few areas this material definitely interferes with tillage.

The Hicks soils closely resemble the Culleoka soils but differ in having well-developed profiles and in occupying more nearly level areas. They differ from the Hampshire soils in having deeper profiles and more friable subsoils. They are lighter in color, less productive, and somewhat shallower than the Maury soils.

Hicks silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Hh).—The following is a representative profile of this soil:

0 to 8 inches, light yellowish-brown very friable silt loam; contains small weathered fragments of parent material; strongly acid.
8 to 22 inches, reddish-yellow friable silty clay loam; contains a few black concretions and splotches of yellow; very strongly acid.
22 to 36 inches, reddish-yellow firm silty clay loam; weathered shale or fragments of limestone.

Phosphatic bedrock occurs at depths of 4 to 8 feet.

The texture of the subsoil ranges from clay loam to silty clay loam. In some areas the subsoil is more yellow and slightly heavy, and in places resembles the Hampshire subsoils. Fragments of leached limestone are scattered throughout the profile of this soil in many places.

This soil is strongly to very strongly acid and generally low in plant nutrients other than phosphorus. Runoff is medium, but internal drainage is medium to rapid. The open, friable characteristics of this soil partly account for its low productivity and leached condition.

This soil is associated with the Culleoka and Inman soils on the steeper, lower ridge slopes and, in many areas, with the Maury soils on the broader ridgetops.

Present use.—All of this soil has been cropped. A large acreage is now in pasture or is left idle each year. Corn, small grains, and lespedeza hay are usually grown on the cultivated acreage. Crop rotations are not commonly used, but some farmers alternate row crops and hay. In many areas row crops are grown for a few years, and then the soil is left idle. Cash crops usually get some fertilizer. Contour tillage is the main method of controlling erosion.

Suitable uses (unit IIe–4).—This soil can be used fairly intensively, but it is deficient in organic matter, lime, and many plant nutrients. Practically all the

common field crops can be grown, but profitable yields are hardly ever obtained unless large quantities of fertilizers are used. A rotation consisting of a row crop followed by a small grain that has been seeded with a legume-grass mixture for hay or pasture is well suited to this soil.

Hicks silt loam, eroded sloping phase (5 to 12 percent slopes) (Hk).—Stronger slopes are the chief difference between this soil and the closely associated eroded gently sloping phase of Hicks silt loam. Other differentiating characteristics are the generally thinner surface soil and shallower depth to bedrock. A few shallow gullies occur in some areas.

Present use.—The same kinds of crops are generally grown on this soil as on the eroded gently sloping phase, but the yields are somewhat less.

Suitable uses (unit IIIe–1).—This soil is low in plant nutrients, but it responds well to management. Row crops should be followed by 2 or more years of legumes and grasses to increase yields and to improve the quality of most other crops.

Hicks flaggy silt loam, eroded sloping phase (5 to 12 percent slopes) (Hg).—This soil differs from the other Hicks soils mainly in having numerous flat fragments of sandy limestone on the surface and throughout the profile. It also differs from the eroded gently sloping phase of Hicks silt loam in having stronger slopes, a thinner surface soil, and in being shallower to bedrock. This is the least extensive soil of the Hicks series in the county.

Present use.—This soil is generally used for pasture because the loose, flat stones (or flags) interfere with mowing and cultivation. In many areas the flagstones are 4 to 6 inches or more in length. A few acres are cultivated, and some areas are still in forest.

Suitable uses (unit VIs–1).—Most of this flaggy soil is best suited for permanent pasture when cleared. In some areas it may be profitable to pick up the loose stones and cultivate the soil in a long crop rotation. The slopes, low fertility, and droughtiness of the soil limit its value as cropland. Grasses and legumes that can withstand a range of soil moisture are suited to this soil.

Huntington series

The Huntington soils are brown, well drained, and deep. They are in depressed areas along narrow drainageways and on the first bottoms of the larger streams in the county. They consist chiefly of alluvial materials that have washed from soils underlain by high-grade limestone. These soils occur throughout the outer and inner Central Basin part of the county.

Where the Huntington soils are associated with cherty upland soils, they have a somewhat lighter colored profile and contain enough chert to make them somewhat difficult to work. Most soil areas along the larger streams are periodically overflowed, and this tends to maintain their fertility. The Huntington soils do not occupy large areas, but they are highly productive, easily maintained, and very valuable agriculturally.

The Huntington soils have developed from parent materials that are similar to those of the Lindside and Egam soils but differ in being well drained and more productive. The associated Armour and Etowah soils occupy higher elevations and have better developed profiles than the Huntington soils.

Huntington silt loam, phosphatic phase (0 to 3 percent slopes) (Ho).—Most areas of this soil are generally level, and they occur as long narrow strips along the stream channels. This soil is associated with the Lindside, Egam, and Dunning soils.

Representative profile:

0 to 20 inches, dark-brown friable silt loam; slightly acid.
20 to 36 inches +, brown friable silt loam to silty clay loam; a few fragments of weathered parent material in lower part.

The 20- to 36-inch layer is underlain by layers of sand, silt, and gravel over limestone bedrock.

In spots the surface layer is almost a loam. A few areas that are on slightly higher elevations in the bottom lands have some subsoil development. These variations generally can be used and managed in the same way as the rest of the soil. Most of the sloping narrow stream banks are included in this mapping unit.

In most places this soil is slightly acid and high in organic matter and phosphorus. Except when flooded, it is well drained throughout the profile. The soil is easy to work and maintain. The subsoil is permeable to air, moisture, and plant roots.

Present use.—Most of this soil is cultivated, mainly to corn. A small acreage that is subject to swift overflow is in permanent pasture. Narrow strips near the stream channels are normally in trees. This soil is generally used for corn year after year without fertilizers or crop rotations. Very few areas are protected from floods.

Suitable uses (unit I–1).—This soil is suitable for most crops grown in the area, but it is somewhat limited in use because of its susceptibility to flooding. It is one of the best soils for corn and is well suited to hay and forage crops. Mostly because of the hazards of flooding, lodging, and disease, this soil is not well suited to winter grain. Although crops are good when the soil is continually cultivated, yields can be improved by use of suitable rotations that include grasses and legumes turned under as green manure.

Huntington silt loam, local alluvium phosphatic phase (0 to 6 percent slopes) (Hr).—This soil differs from the Huntington silt loam, phosphatic phase, in that it is not subject to frequent flooding. It consists of alluvium that washed from the Mimosa, Maury, and Braxton soils. Depths to bedrock are generally more than 3 feet. Included with this soil are a few areas covered by a thin layer of subsoil that recently washed from the surrounding severely eroded upland soils.

This soil is not extensive, and it occurs along small drainageways and at the foot of slopes that are underlain by phosphatic limestone. Slopes seldom exceed 3 percent. The soil is mainly in the central part of the county in the outer Central Basin.

This soil is very productive. It is slightly acid, high in phosphorus, and well supplied with organic matter. Runoff and internal drainage are medium. The capacity to hold available moisture is high enough for practically all of the commonly grown crops. The subsoil is permeable to air, moisture, and plant roots.

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Present use.—Most of this soil has been cleared and used for nearly all the commonly grown crops, mainly corn. Yields are fairly high, although fertilizers are not commonly used. Some soil areas are managed separately, especially when they are close to severely eroded or abandoned soils.

Suitable uses (unit I–1).—This soil is well suited to intensive use and to many kinds of crops, including corn, tobacco, small grains, and hay. Short rotations that include winter cover crops will help to maintain the productivity of the soil.

Huntington silt loam, depressional phase (0 to 3 percent slopes) (Hn).—This soil differs from the Huntington silt loam, phosphatic phase, chiefly in that it is lower in phosphorus and occupies depressions. Water stands on some areas for a short time after rains, but it soon drains into crevices in the underlying limestone, or flows away through surface ditches and sinkholes. Deep-rooted legume crops are occasionally lost because of the very slow surface drainage after heavy rains. In some places soil productivity is impaired by deposits of material that have washed in from deeply gullied and severely eroded areas. However, most soil areas are very fertile and well drained and will produce good yields of most crops.

This soil occurs in the inner Central Basin of the county. It is associated with the Hagerstown and Talbott soils of the uplands and with the Emory soils of the colluvial lands.

Present use.—Many areas of this soil are so small that they are used and managed in the same way as the soils on surrounding slopes. They are very productive and are used mainly for row crops. However, their importance to agriculture is diminished somewhat by their small extent and close association with soils suited to very different uses.

Suitable uses (unit I–1).—This soil can be used intensively. Row crops can be grown continuously without causing serious damage. The soil can be satisfactorily maintained by use of short rotations that include legumes and other crops used as green manure. Adjacent upland soils should be carefully managed to prevent heavy subsoil materials from covering this soil.

Huntington silt loam, depressional phosphatic phase (0 to 3 percent slopes) (Hp).—This soil differs from Huntington silt loam, phosphatic phase, mainly in having a somewhat thicker surface layer and in not being subject to flooding by streams. Water stands on some areas for a short time after rains, but it soon drains into crevices in the underlying limestone, or flows away through surface ditches and sinkholes. Deep-rooted legumes are sometimes permanently damaged by the ponded water. Soil productivity is often reduced by subsoil materials that have washed in from surrounding deeply gullied or severely eroded areas. Most soil areas, however, are very fertile and produce good yields of most of the commonly grown crops.

This well-drained soil occurs in level depressions in the outer Central Basin part of the county. It has been formed from parent materials that are similar to those of Huntington silt loam, local alluvium phosphatic phase, and occurs in association with it.

Present use.—This soil frequently occurs as small areas that are generally farmed along with the more extensive soils in the field. A few of the larger soil areas are used separately, mainly for corn.

Suitable uses (unit I–1).—Most of this soil can be cropped intensively, and yields can be maintained if proper fertilizers are used. The soil is very fertile and high in phosphorus; consequently, fertilizers should be applied according to the results of soil tests. Nearby higher lying soils should be carefully managed to prevent heavy soil materials from washing to this soil.

Huntington cherty silt loam, phosphatic phase (0 to 3 percent slopes) (Hl).—This soil differs from Huntington silt loam, phosphatic phase, chiefly in having chert fragments on the surface and throughout the profile. In some places fragments of chert are large and numerous enough to interfere seriously with tillage.

This soil is medium to slightly acid and contains a moderate amount of organic matter and plant nutrients. It is well drained and can be worked fairly soon after floodwaters recede.

This soil occurs as small areas, mainly in the northwestern and southwestern parts of the county in association with the cherty Armour soils and with those of the Lindside and Dunning series. Most areas are nearly level. The soil areas near the Highland Rim are somewhat lighter colored throughout the profile.

Present use.—Much of this soil has been cleared and cropped. Corn is the chief crop, but some areas are in hay and permanent pasture. Crop rotations are not generally followed; a few crops are lightly fertilized.

Suitable uses (unit IIs–1).—The use of this soil is limited by chert and its susceptibility to flooding. The chert makes it difficult to work, but the soil can be cultivated over a wide range in content of moisture. Most areas are suited to corn, and, where floods are not too frequent, deep-rooted legumes can be used in plant mixtures for hay and pasture. Winter grain is frequently damaged by floods.

Huntington cherty silt loam, local alluvium phosphatic phase (0 to 6 percent slopes) (Hm).—This soil differs from Huntington silt loam, phosphatic phase, mainly because it is not subject to flooding and has chert on the surface and in the profile. Some soil areas that are in the narrow valleys near the edge of the Highland Rim are somewhat lighter colored than the rest of the soil and contain only a small amount of phosphorus.

The parent material of this soil has washed from the surrounding slopes of cherty Frankstown, Dellrose, and Mimosa soils. The soil is widely distributed throughout the county in the chert hills of the outer Central Basin.

Present use.—Nearly all of this soil has been cleared and used for crops and pasture. The cultivated areas are generally used for corn, tobacco, and garden vegetables year after year. The narrow areas of this soil near steep, cherty soils are generally used as native pasture.

Suitable uses (unit IIs–1).—This soil can be used intensively, and it is suited to many kinds of crops,

including corn, tobacco, small grains, hay, and vegetables. A short rotation of crops is desirable on most farms.

The larger fragments of chert should be removed when the soil is cultivated or used for hay. Areas of this soil large enough to be farmed separately should be protected from deposits of chert washed from higher lying slopes.

Inman series

The Inman series consists of shallow, phosphatic soils on sloping to steep ridges that are within and adjacent to the inner Central Basin, mainly in the east-central part of the county. Inman soils have developed from weathered phosphatic sandy limestone or interbedded limestone and sandy shale. The parent limestone and shale are the lower members of the Hermitage formation. Numerous small, flat, porous fragments of limestone or shale are in the soil in most places, and limestone bedrock is frequently exposed on the lower slopes. Most of the soil is severely eroded because it has been cleared and intensively cultivated. The subsoil is plastic when wet and hard when dry.

Inman soils occur in association with the Hampshire, Hicks, and Culleoka soils. The Inman and Hampshire soils are very closely associated on the ridgetops where slopes are strong. They resemble each other in many respects, but the Inman soils occupy stronger slopes, are shallower to bedrock, and do not have a well-developed subsoil. In many places the Inman soils are difficult to map separately. The closely associated Culleoka soils are deeper than the Inman soils and consist mainly of friable colluvial material. The Colbert soils of the inner Central Basin occupy more gentle slopes at lower elevations.

Inman and Hampshire silty clay loams, severely eroded sloping phases (4 to 12 percent slopes) (Ic).—The Inman and Hampshire soils occur in close association on narrow ridgetops in the outer Central Basin. They have formed from weathered phosphatic limestone and shale, are alike in many characteristics, and are difficult to map separately. For these reasons, the two soils have been mapped together and are shown on soil maps as undifferentiated soil units. Each unit may contain one or both soils. The Hampshire soil is described in the discussion of the Hampshire series.

Representative profile of Inman silty clay loam:

0 to 6 inches, light yellowish-brown friable silty clay loam; strongly acid.

6 to 12 inches +, strong-brown firm heavy silty clay loam to silty clay; mottles of yellow and gray in lower part; contains small weathered fragments of shale.

Weathered phosphatic shale and limestone is at depths of 1½ to 2 feet.

The Inman soils differ from the Hampshire soils in that they are shallower to weathered phosphatic shale and limestone and have thinner subsoils. Depth to bedrock varies from 10 to 20 feet. The Hampshire subsoil extends to depths of 20 to 30 inches.

The soils in this mapping unit have lost much of the original surface layer through erosion, and the plow layer now consists of original surface soil mixed with subsoil. Variations in color and texture of surface layer and in depths to bedrock occur throughout the soil area. Some soil areas resemble the Hicks soils because they have a more friable subsoil.

The Inman and Hampshire soils are strongly to very strongly acid, low in organic matter, and lacking in most plant nutrients other than phosphorus. Runoff is rapid, but internal drainage is fairly slow. A few weathered fragments of shale or limestone are in the soil, and outcrops of shaly limestone occur on the lower slopes in some places.

Present use.—Many of these soil areas are in pastures of varying quality. Some areas are idle. A small acreage is used for corn and hay, but yields are generally low because the soil has been severely eroded and poorly managed.

Suitable uses (unit IVe–1).—These soils are best suited to hay or pasture. They can be used for row crops in long rotations made up mostly of close-growing grasses and legumes. Their heavy subsoil restricts the movement of water, air, and plant roots and limits their usefulness for crops.

Inman shaly silty clay loam, severely eroded moderately steep phase (12 to 25 percent slopes) (Ia).—This soil differs from the Inman and Hampshire silty clay loams, severely eroded sloping phases, in slope, erosion, and shallowness to bedrock. It has lost most all of the original surface soil through erosion and has shaly fragments of parent material on the surface and throughout the profile.

Present use.—Most of this soil is in pasture or is idle. A small acreage is used for crops. The slopes are generally short, and many of the fields are small. Crop yields are low, and pastures are frequently unproductive.

Suitable uses (unit VIe–1).—This soil has a low moisture-supplying capacity, and it is unsuited to row crops. It is fairly well suited to pasture and hay.

Inman shaly silty clay loam, severely eroded steep phase (25 to 60 percent slopes) (Ib).—This soil is fairly extensive and occupies steep ridge slopes in association with other Inman and Culleoka soils. It is similar to the severely eroded sloping phases of Inman and Hampshire silty clay loams, in parent material and in many other characteristics. It differs from this undifferentiated soil in having stronger slopes and more rapid runoff and in being more droughty. In addition it has lost practically all of the original surface soil and contains fragments of shale in the surface layer. The profile layers in this soil are shallow, and the depths to bedrock are variable. Shallow gullies are common in many areas, and the parent material is exposed in most places. Included in this mapping unit are small areas where the flat fragments of limestone or shale are more than 3 inches long. These variations do not change the use suitability of these steep soils.

Present use.—All of this soil has been cleared and used for crops, mainly corn and lespedeza. Yields have been low, and many areas are now idle or abandoned. A few areas adjacent to Rockland and Gullied land are in grazed, cutover forest.

Suitable uses (unit VIIe–1).—This soil is very poorly suited to crops or pasture. Pastures are difficult to establish and maintain because the soil is droughty

and of low fertility. It should be planted or allowed to seed to forest trees.

Lindside series

The Lindside soils are moderately well drained to somewhat poorly drained. They occupy small areas and occur throughout the county along narrow drainageways, in depressions, and along the first bottoms of the larger streams. The Lindside soils have formed mainly from materials that washed from slopes underlain by high-grade limestone.

Most areas of the Lindside soils are moderately fertile and easily worked. However, overflow from creeks and ponding of depressed areas limit their use for crops. Lindside soils in the outer Central Basin are high in phosphorus.

Lindside soils along the larger streams are associated chiefly with the Huntington, Egam, and Dunning soils of the bottom lands and with the Armour and Captina soils of the terrace lands.

Near the Highland Rim, Lindside soils are associated with cherty upland soils. In addition, they have a somewhat lighter colored profile and contain enough chert to make cultivation somewhat difficult.

The Lindside soils differ from Huntington soils primarily in being less well drained and somewhat less productive. The associated Burgin and Dunning soils are darker colored and have heavier, more plastic subsoils.

Lindside silt loam, phosphatic phase (0 to 3 percent slopes) (Lc).—In most places this soil occupies low or slightly depressed areas on the bottom lands at elevations below the higher lying Armour and Captina soils on the low terraces. Slopes are generally less than 3 percent in most areas.

Representative profile:

0 to 16 inches, brown friable silt loam; a few gray mottles in lower part; slightly acid.

16 to 30 inches +, dark grayish-brown friable to firm silty clay loam mottled with gray and yellow; numerous small, black concretions.

The 16- to 30-inch layer is underlain by layers of sand, clay, or gravel that overlie limestone bedrock.

In a few areas the surface layer is more than 16 inches thick and the mottled layer is nearer the surface. The surface soil is browner along the smaller streams than along the larger creeks. Included in this mapping unit are areas where the mottled subsoil layer is dark gray to black as the result of recent alluvial deposits.

This soil is high in phosphorus and contains moderate amounts of organic matter and plant nutrients. Runoff is ordinarily very slow, and internal drainage is medium to slow. The mottled yellow and gray subsoil layer indicates that the height of the water table fluctuates.

Present use.—Practically all of this soil has been cleared and is used for crops. When late floods prevent the planting of crops, the fields usually are idle for the season. Corn is grown continuously for several years and then followed by pasture, or the land is left idle after cropping to corn. Crops normally are not rotated or fertilized. Few areas are artificially drained or protected from erosive floodwaters.

Suitable uses (unit IIw–1).—This soil can be used intensively for row crops, but its suitability for them is limited by poor drainage and susceptibility to floods. It is suited to corn and spring-sown crops, but winter grains and deep-rooted legumes are usually damaged or killed by floods or by the high water table. Productivity can be improved by use of green-manure crops.

Lindside silt loam, local alluvium phase (0 to 6 percent slopes) (Lb).—This soil has characteristics and uses that are similar to those of Lindside silt loam, phosphatic phase, except that it is not subject to flooding and contains little if any phosphorus. It occurs in level or depressed areas and along small narrow drainageways, mostly in the inner Central Basin. There are also a few areas in the Highland Rim, where this soil contains more silt and is lighter in color. Slopes seldom exceed 3 percent.

Present use.—This soil is easily worked and conserved, but poor drainage limits its use mainly to summer crops such as corn, soybeans, and lespedeza. Grasses and legumes that can tolerate excessive moisture often produce good pasture or hay.

Suitable uses (unit IIw–1).—Where this soil has been drained by tile or open ditches, most row and hay crops can be grown successfully.

Lindside silt loam, local alluvium phosphatic phase (0 to 6 percent slopes) (Ld).—This soil differs from Lindside silt loam, phosphatic phase, in that it is not subject to flooding. It is slightly to medium acid, high in phosphorus, and moderate in organic matter.

This soil occurs in level depressed areas and along small drainageways in the outer Central Basin. It consists of materials that have washed from slopes of Mimosa, Maury, Braxton, and Inman soils. Slopes seldom exceed 3 percent.

Present use.—Practically all of this soil has been cleared and is used chiefly for corn and hay. Crops get little fertilization.

Suitable uses (unit IIw–1).—This soil can be used intensively, but its suitability for crops is limited by poor drainage and temporary ponding. Summer crops such as corn, soybeans, and lespedeza are best suited. If drainage is improved, most row and hay crops can be grown.

Lindside cherty silt loam, phosphatic phase (0 to 3 percent slopes) (La).—This soil differs from Lindside silt loam, phosphatic phase, chiefly in having chert fragments on the surface and throughout the profile. In addition, the surface soil is lighter colored in some places. In places the fragments of chert are large and numerous enough to interfere seriously with cultivation. This soil is subject to annual overflows, but normally they are of short duration and put only a shallow sheet of water on the soil.

This soil occurs principally in the northwestern and southwestern parts of the county in the cherty hills area of the outer Central Basin.

Suitable uses (unit IIw–1).—This soil can be used intensively, but flooding, poor drainage, and chert limit its suitability for crops. Corn, soybeans, and many hay and pasture crops that can tolerate a wide range in soil moisture are well suited. Row-crop rotations can be short, but soil productivity can be improved if

legumes used as green-manure are included in the rotation.

Made land

Made land (Ma).—This miscellaneous land type consists of areas that have been filled artificially with earth or trash, or both, and then smoothed. Most of the fill material was moved in earth construction for railroad yards, loading yards, and city dumps. Made land is in the vicinity of Columbia, is of small extent, and is of little or no agricultural value. This land type has not been classified as to capability.

Maury series

The Maury series consists of deep, well-drained, brown soils of uplands. These soils have developed from the weathered residuum of phosphatic limestone. They are widely distributed throughout the central part of the county, in the outer Central Basin. They occupy gently sloping to sloping areas and are usually underlain by the Bigby and Hermitage formations. The Maury soils are associated with the Mimosa, Braxton, Hicks, Culleoka, Inman, and Hampshire soils of the uplands and with the Armour and Huntington soils of the colluvial lands. Maury soils are highly productive, easily worked, high in phosphorus, and suited to many kinds of crops.

The Maury soils occupy positions in the landscape similar to those of the Braxton soils, but they differ from them in being deeper to bedrock and in having a more friable subsoil. The associated Hicks soils are lighter in color than the Maury, more acid, and less productive. The Mimosa soils are more yellow than the Maury and have a heavier subsoil.

Maury silt loam, eroded gently sloping phase (2 to 5 percent slopes) (Mb).—A representative profile follows:

0 to 14 inches, dark-brown friable silt loam; slightly acid.
14 to 26 inches, yellowish-red friable silty clay loam; many small black concretions; medium acid.
26 to 36 inches +, yellowish-red firm silty clay loam to silty clay; mottles of yellow and rust brown in lower part.

The 26- to 36-inch layer is underlain by lenses of fine sandy clay and weathered fragments of limestone that grade to phosphatic limestone at depths of 60 to 120 inches.

Included with this soil are areas in which the subsoil is redder and slightly compact. Areas containing these variations are usually at slightly higher elevations, and they have a somewhat thinner surface soil. A few level uneroded areas are also included.

This soil is medium acid. Runoff and internal drainage are medium, and the supply of moisture that plants can use is ample for the commonly grown crops. The surface soil and subsoil are generally free of limestone; bedrock is generally at depths of more than 3 feet.

This soil is associated with the shallower Braxton soils, with the Mimosa soils at slightly higher elevations, and with the Hicks soils at lower elevations.

Present use.—All of this soil has been cleared and farmed for many years. Corn, tobacco, and small grains are the most common crops, and a small acreage is in hay. Crop rotations are used in many areas, and fertilizers are commonly applied to the cash crops.

Suitable uses (unit IIe–1).—This soil is well suited to rotations that include a row crop followed by 1 or 2 years of legumes or close-growing grasses, or both. All crops commonly grown in the county are well suited to this soil.

Maury silt loam, eroded gently sloping coarse phase (2 to 5 percent slopes) (Mc).—This soil differs from Maury silt loam, eroded gently sloping phase, mainly in that it is more acid and has a lighter brown surface soil. In addition, it has formed from materials that weathered from the Hermitage formation and all layers are more open and friable. The subsoil also contains more sand.

Included with this soil are areas in which the subsoil is more yellow and somewhat resembles that of the Hicks soils. This Maury soil occurs in the east-central part of the county in association with the Hampshire, Hicks, Inman, and Culleoka soils.

Present use.—This soil is moderately productive, and approximately the same percentage of the acreage is used for the same kinds of crops as are grown on the eroded gently sloping phase of Maury silt loam.

Suitable uses (unit IIe–1).—This soil can be used intensively, but it is medium to strongly acid and moderate in most plant nutrients. Phosphorus is usually high. This soil is suited to practically all the commonly grown field crops. Winter legumes grown as cover crops in fields used for row crops will increase the supply of organic matter, improve the capacity to hold available moisture, and reduce erosion caused by hard winter rains.

Maury silt loam, eroded sloping coarse phase (5 to 12 percent slopes) (Md).—This soil differs from the eroded gently sloping coarse phase of Maury silt loam mainly in slope. It is also less brown, more acid, has a thinner surface layer, and occupies stronger slopes than Maury silt loam, eroded gently sloping phase. This soil occurs in the east-central part of the county in association with other Maury soils and with the Hicks, Inman, and Culleoka soils.

Present use.—The same kinds of crops are generally grown on this soil as on the gently sloping phases of Maury silt loams, but yields are somewhat lower.

Suitable uses (unit IIIe–1).—The productivity of this soil has been reduced because erosion has removed part of the original surface soil and some of the organic matter and plant nutrients. In most places this soil is suited to intertilled crops, but they should be grown in a rotation with small grains and hay. Suitable hay plants are alfalfa or mixtures of grasses and legumes. The use of legumes as green manure should be part of the planned rotation.

Maury silty clay loam, eroded sloping phase (5 to 12 percent slopes) (Me).—This soil differs from the closely associated eroded gently sloping phase of Maury silt loam in having stronger slopes. In addition, the surface soil is somewhat thinner and a little heavier because subsoil has been mixed with it in tillage. The subsoil is exposed in small severely eroded spots.

Present use.—Yields are somewhat lower on this soil than on the eroded gently sloping phase, but fertilization practices are about the same.

Suitable uses (unit IIIe–1).—The management of this soil should include special attention to the control of runoff. Management is similar to that of the eroded gently sloping phase of Maury silt loam, except that crop rotations should be longer and include grasses and deep-rooted legumes a greater percentage of the time.

Maury silty clay loam, severely eroded sloping coarse phase (5 to 12 percent slopes) (Mf).—This soil differs from the Maury silt loam, eroded gently sloping coarse phase, in degree of slope and in having lost most of the original surface layer through erosion. It is also more acid and has a finer textured plow layer. Though severely eroded, gullies are not too frequent. The loss of original surface soil has caused small fragments of parent material to accumulate in the plow layer of some areas.

This soil occurs as small areas in the east-central part of the county in association with other Maury soils and with the Hicks, Inman, and Culleoka soils.

Present use.—All of this soil has been in cultivation, but many areas are now in unimproved pasture or are idle. In its present condition, the tilth and capacity to hold available moisture have been reduced. In addition, runoff is rapid, and the soil is continuing to erode. Regular rotations are not followed, and fertilizers are not commonly used.

Suitable uses (unit IIIe–1).—This soil is suited to rotations that include mainly small grains, hay, and pasture. Crops in the rotation should provide organic matter to improve soil productivity. Tillage should be along the contour, and where row crops are frequently grown, terraces should be constructed and crops grown in strips to control runoff.

Mimosa series

The Mimosa series consists of moderately well drained to well drained soils of uplands. These soils have developed from materials that weathered from clayey phosphatic limestone, mainly limestone of the Catheys and Cannon formations. Mimosa soils occupy the slopes of low ridges and the benchlike positions in valleys. They are at slightly higher elevations than the Maury, Donerail, and Braxton soils. The associated Bodine, Frankstown, Dellrose, and Ashwood soils occupy the higher ridge slopes above the Mimosa soils. Where the Mimosa soils occur at the base of long steep slopes occupied by the cherty Bodine, Frankstown, and Dellrose soils, the parent materials were partly cherty colluvium, and in this position Mimosa soil contains chert that interferes with tillage.

Mimosa soils are moderately productive and have been used for many kinds of crops. Improper use and management have been the cause of severe erosion in many places.

The Mimosa soils differ from the associated Maury soils in that they are more yellow, somewhat shallower, and less well drained and have a somewhat compact and plastic subsoil. Compared with the Mimosa soils, the Donerail has a somewhat deeper and more friable profile; the Ashwood is less acid, shallower to bedrock, and has a darker surface layer than the Mimosa soils.

Mimosa silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Mm).—This soil occurs mainly in the west-central part of the county. It is at elevations that are slightly higher than those of the associated Maury soils. The Frankstown, Dellrose, and cherty Mimosa soils occupy nearby higher lying slopes.

Representative profile:

0 to 10 inches, brown friable silt loam; medium acid.
10 to 26 inches, reddish-yellow firm silty clay loam; mottles of brown and yellow in the lower part; numerous small, black concretions.
26 to 30 inches +, brownish-yellow firm silty clay mottled with yellow and gray; small black concretions; plastic.

The 26- to 30-inch layer is underlain by phosphatic clayey limestone.

In some places the surface layer contains more organic matter than the rest of the soil and is very dark gray. The subsoil ranges from a clay to a silty clay loam, and the color is more yellow. These variations do not appreciably affect the management of this soil.

This soil is medium acid, high in phosphorus, and contains moderate amounts of organic matter and plant nutrients. Runoff is medium, but internal drainage is fairly slow. The fine-textured lower subsoil somewhat restricts the movement of air and water and the growth of plant roots.

Present use.—This soil is moderately productive and easily worked. Most areas have been used for corn, tobacco, small grains, and hay. Crop rotations are not generally used, but most crops get some fertilizer.

Suitable uses (unit IIe–3).—This soil can be used intensively for all the commonly grown crops. The heavy subsoil requires that the soil be managed carefully. Rotations should include deep-rooted legumes which will help make the subsoil more permeable.

Mimosa silty clay, severely eroded sloping phase (5 to 12 percent slopes) (Mn).—This soil differs from Mimosa silt loam, eroded gently sloping phase, mainly in slope and in having lost nearly all of the more friable original surface soil. The plow layer is now practically all subsoil, and it contains less organic matter and plant nutrients than the original surface soil. Shallow gullies are common in some places. Outcrops of bedrock and small fragments of limestone are scattered over the surface in a few areas. This soil is fairly extensive, and it occurs in the outer Central Basin.

Present use.—All of this soil has been farmed. Many areas are now idle or in unimproved pasture because of low productivity and severe erosion.

Suitable uses (unit IVe–1).—This soil is very difficult to work and droughty most of the year. Its suitability for row crops is limited, but it is well suited to pasture. Close-growing grasses and legumes that can tolerate a wide range in available moisture produce good yields. The soil can be used occasionally for row crops if tilth and fertility are improved.

Mimosa silty clay loam, eroded sloping phase (5 to 12 percent slopes) (Mo).—This soil differs from Mimosa silt loam, eroded gently sloping phase, mainly in slope, in susceptibility to erosion, and in having a thinner surface soil. In addition it is less productive

because the original surface soil has been mixed with subsoil. The total area of this soil is small.

Present use.—All this soil has been cleared and farmed. The slowly permeable subsoil has caused erosion in many cultivated areas.

Suitable uses (unit IIIe–2).—This soil is suited to row crops, but it should be carefully managed because of its slope and susceptibility to erosion. Row crops should be grown in rotation with small grains, grasses, and deep-rooted legumes. The soil is also well suited to pasture and hay.

Mimosa cherty silt loam, eroded sloping phase (5 to 12 percent slopes) (Mg).—This soil differs from Mimosa silt loam, eroded gently sloping phase, chiefly in slope and in containing fragments of chert that interfere slightly with tillage. The soil is medium to strongly acid, high in phosphorus, and moderately productive.

This soil occupies the lower slopes of cherty ridges that extend from the Highland Rim into the outer Central Basin. It has formed partly from cherty parent material that washed off the higher lying slopes and from clayey limestone containing chert. The soil is fairly extensive in the western part of the county, but it also occurs near isolated remnants of the Highland Rim in the Central Basin.

Present use.—Nearly all this soil is used for crops, but each year some areas are idle because crop rotations are seldom systematically used.

Suitable uses (unit IIIe–2).—This soil is suited to crops that require tillage. Careful management is required to maintain productivity and overcome the disadvantages caused by slope, chert, and a slowly permeable subsoil. Corn, tobacco, small grains, and hay are suited to this soil. They should be grown in somewhat long rotations that include deep-rooted legumes to improve the permeability of the subsoil.

Mimosa cherty silt loam, eroded moderately steep phase (12 to 25 percent slopes) (Mh).—This soil differs from Mimosa cherty silt loam, eroded sloping phase, mainly in slope. In profile characteristics, this soil is similar to the eroded gently sloping phase of Mimosa silt loam, but is cherty, is somewhat shallower, and has a thinner surface layer. This soil occurs mainly in the western and southern parts of the county.

Present use.—Many cleared areas are now in pasture, but some acreage is still used for corn, small grains, and hay. A small acreage is in grazed, cutover forest.

Suitable uses (unit IVe–1).—This soil is well suited to pasture, but if carefully managed, it can be used for small grains and hay. Grasses mixed with deep-rooted legumes that can tolerate a range in available moisture and drainage produce the most forage and stay green the longest.

Mimosa cherty silty clay loam, severely eroded sloping phase (5 to 12 percent slopes) (Mk).—Chertiness, stronger slopes, and the loss of surface soil are the main differences between this soil and Mimosa silt loam, eroded gently sloping phase. This soil also differs from Mimosa cherty silt loam, eroded sloping phase, in having lost more of its surface soil through erosion. The plow layer now consists chiefly of the upper subsoil. Shallow gullies are numerous, and limestone outcrops occur in some areas.

***Figure 14.*—Severely eroded moderately steep phase of Mimosa cherty silty clay loam.**

Present use.—This soil was once intensively cultivated, but it was severely eroded through improper use and management. Most of the acreage is now idle or in unimproved pasture.

Suitable uses (unit IVe–1).—This soil is too droughty and cherty to be used frequently for row crops. It is well suited to hay and pasture if planted to mixtures of grasses and deep-rooted legumes that tolerate droughtiness. After the soil has been in pasture or hay and its tilth and organic matter have thus been improved, it can be used for row crops if they are grown in long rotations.

Mimosa cherty silty clay loam, severely eroded moderately steep phase (12 to 25 percent slopes) (Ml).—This soil differs from Mimosa silt loam, eroded gently sloping phase, chiefly in slope, in content of chert, and in having a plow layer composed mainly of materials from the upper subsoil. Shallow gullies are common in many areas, and a few deep gullies have formed that cannot be crossed with farm machinery. Outcrops of bedrock are numerous on the lower slopes (fig. 14). This soil occurs mostly in the western and southern parts of the county.

Present use.—Practically all this soil is now in unimproved pasture, or is idle or abandoned. Only small areas occurring in association with the Dellrose soils are in corn or hay.

Suitable uses (unit VIe–1).—This soil is poor for tilled crops because it is cherty, severely eroded, and of low fertility. Good pastures or meadows can be developed if the soil is properly managed. The management needed is similar to that described for Mimosa cherty silt loam, eroded moderately steep phase, except that more intensive measures are needed for the control of runoff and erosion.

Mine areas, reclaimed

Mine areas, reclaimed (Mr).—This land type consists of excavations originally made for the mining

of rock phosphate that have been smoothed down or leveled and can be used as cropland or pasture. The spoil banks were pushed into the excavated pits and the area leveled. The relief depends mainly upon the degree of leveling. Some places are smooth enough for cultivation with farm machinery, but other areas can be used only as pasture. The soil material filling the excavations consists of parent material and weathered fragments of limestone scattered throughout the fill. Outcrops of bedrock are common. Reclaimed mine areas are generally small but may contain as much as 10 or more acres. They are located mainly in the central part of the county and are associated with Mimosa, Maury, and Braxton soils.

Reclaimed mine areas are very acid, somewhat droughty, and low in nitrogen and potassium. Management consists of planting suitable crops and applying fertilizer according to the results of soil tests. The supply of organic matter should be increased to improve the physical condition and water-holding capacity. The more level areas generally can be used for most of the commonly grown crops. The steeper areas are best suited to hay and pasture. This land type has not been classified as to capability.

Mines, pits, and dumps

Mines, pits, and dumps (Mp).—This land type consists of excavations resulting from the strip mining of rock phosphate. A few of these areas were excavated for chert used in the surfacing of roads. The excavations range from 1 acre to more than 500 acres in area and from 10 to more than 50 feet in depth. The excavations are scattered throughout the outer Central Basin and generally occur where the Maury and Braxton soils are underlain by the Bigby formation. The overburden stripped off in the mining is usually dumped in parallel rows of mounds, the height of which depends on the type of machinery used. The excavations for chert used in the surfacing of county roads are usually on the sides of the higher ridges occupied by Frankstown and Bodine soils.

In their present condition, the areas mined for phosphate are of little agricultural value because their inaccessibility, irregular relief, and poor physical condition prevent their use as cropland or pasture. Older strip-mined areas are commonly covered with small native locust trees, or with pine, locust, and kudzu (fig. 15) that have been planted. This land type is in capability unit VIIe–1.

Mountview series

The Mountview series consists of well-drained, light-colored soils of uplands. They occupy extensive areas on smooth, moderately broad to narrow ridgetops in the Highland Rim. They have developed in a thin layer of loesslike silt deposited over materials that weathered from cherty limestone of the St. Louis and Fort Payne formations. The Mountview soils are associated with the Dickson soils in the more nearly level areas and with the Bodine soils in the steeper, dissected parts of the Highland Rim. On the stronger slopes, Mountview soils are somewhat shallower to bedrock and contain some fragments of chert in the subsoil. These soils are important agriculturally, but the use of various cropping systems depends somewhat upon gradients and the quantity of chert on the surface.

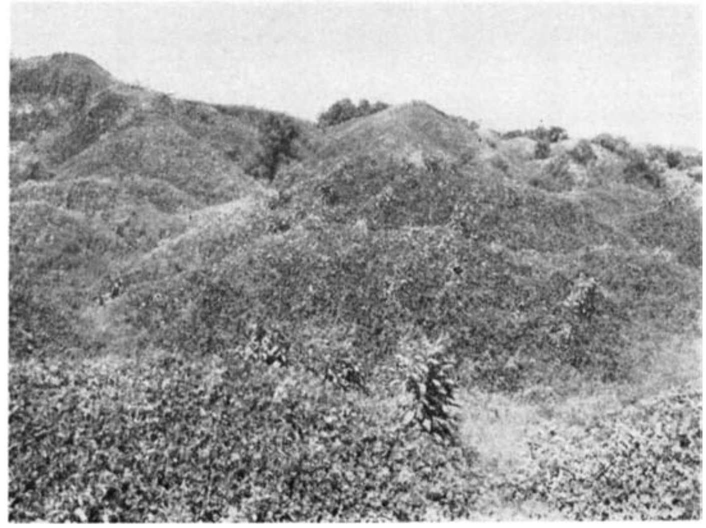

Figure 15.—**Kudzu for pasture and stabilization of spoil heaps of old phosphate mines.**

The Mountview soils differ from the Dickson soils mainly in not having a brittle fragipan layer below the subsoil. They differ from the associated Bodine soils in having deeper, well-developed profiles with little or no chert in the surface layer.

Mountview silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Ms).—This is one of the most desirable agricultural soils in the Highland Rim.

Representative profile:

0 to 10 inches, grayish-brown to yellowish-brown very friable silt loam; strongly acid.
10 to 24 inches, reddish-yellow friable silt loam to silty clay loam; very strongly acid.
24 to 30 inches +, reddish-yellow firm silty clay loam; mottles of gray and yellow in lower part; small brown concretions.

The 24- to 30-inch layer is underlain by weathered cherty parent materials. Bedrock is at depths of 84 to 120 inches.

This soil includes a few areas in which the subsoil is more red and resembles the Bewleyville soils mapped in other counties. A few areas are included that have a faint fragipanlike layer above the subsoil.

This soil is strongly acid and fairly low in organic matter and plant nutrients. Runoff and internal drainage are medium. The surface soil and subsoil are relatively free of chert, but numerous angular chert fragments occur below the subsoil in many places.

Present use.—Nearly all this soil has been cleared, and most areas are in crops. Little of the acreage is idle or in pasture. Crop rotations are seldom used, but small quantities of fertilizer are used on cash crops.

Suitable uses (unit IIe–4).—This soil is well suited to most of the field crops grown in the county, but it is only moderately productive. It is easily worked, and the moisture-supplying capacity is good. Row

crops should be grown in rotation with a small grain seeded with a deep-rooted legume or with a legume-grass mixture to be used for hay or rotation pasture.

Mountview silt loam, sloping shallow phase (5 to 12 percent slopes) (Mt).—This soil differs from Mountview silt loam, eroded gently sloping phase, in slope, in being shallower to cherty limestone parent material, and in having fragments of chert in the subsoil. Most of the surface layer is free of chert, but in places angular fragments of chert are scattered over the surface. The soil is strongly acid, low in organic matter and plant nutrients, and moderately low in moisture-supplying capacity.

This soil occurs as fairly small areas on the more sloping wooded ridgetops in the Highland Rim.

Present use.—Most all of this soil is in grazed, burned, and cutover forest. Yields of forest products are low.

Suitable uses (unit IIIe–3).—This soil is suitable for crops if it is cleared of trees. It is fairly easy to work, and the moisture content is enough for crops commonly grown in the area. Because the soil is leached, heavy applications of soil amendments are needed for profitable yields. Row crops can be grown once every 3 or 4 years.

Mountview silt loam, eroded sloping shallow phase (5 to 12 percent slopes) (Mu).—This soil has stronger slopes, a thinner surface soil, and a shallower depth to weathered chert than the eroded gently sloping phase of Mountview silt loam. In addition, it contains chert in the subsoil. Continuous cultivation and erosion have left small quantities of chert on the surface of this soil in many places. The supply of organic matter, plant nutrients, and available moisture has been reduced. This soil occurs on sloping ridgetops in the Highland Rim.

Present use.—All of this soil has been cleared and used mainly for corn and lespedeza. Many areas now are idle or in pasture. The idle areas are usually burned to clear the brush before they are plowed and used again for crops.

Suitable uses (unit IIIe–3).—This soil is suitable for crops requiring tillage. It is easy to work but moderately difficult to maintain in productivity. Row crops should be grown in a rotation with close-growing crops for hay and pasture.

Mountview silty clay loam, severely eroded sloping shallow phase (5 to 12 percent slopes) (Mv).—This soil differs from Mountview silt loam, eroded gently sloping phase, chiefly in slopes, in being shallower to cherty parent material, and in having lost practically all of the surface soil through erosion. The plow layer now consists of the remaining original surface soil mixed with the upper part of the subsoil. Erosion has exposed the underlying cherty layers in many places and has left small fragments of chert scattered over the surface. Shallow gullies that can be crossed by farm machinery have formed in many areas. Included with this soil are areas that have a faint fragipanlike layer below the subsoil resembling that of the Dickson series.

This soil occurs on the rolling ridgetops of the Highland Rim in association with the Dickson and Bodine soils and with other Mountview soils.

Present use.—All of this soil has been in cultivation, but many fields are now idle or in pasture of low carrying capacity.

Suitable uses (unit IVe–2).—This soil is low in fertility. The control of runoff and erosion is difficult, and the soil is not well suited to crops that require tillage. It responds to management and is well suited to hay and pasture. If fertility and physical properties are restored through good management, the soil can be used again for intertilled crops in long rotations.

Pace series

The Pace soils have formed around the foot of slopes from materials that have accumulated from upland soils underlain by cherty limestone. They generally occur as small areas, which are widely distributed in the Highland Rim in association with the Bodine, Mountview, and Greendale soils. The Pace soils are somewhat low in productivity and in many places contain chert that interferes with cultivation.

The Pace soils are similar to the Greendale soils in topographic position and parent material. They differ in being more susceptible to erosion and in having better developed layers of surface soil and subsoil. The cherty Armour soils in the outer Central Basin occupy positions in the landscape that are similar to those of the Pace soils, but they are more brown, less acid, and higher in phosphorus.

Pace cherty silt loam, eroded sloping phase (4 to 12 percent slopes) (Pa).—This soil generally occurs as small areas distributed mainly in the extreme northwestern part of the county. The associated Bodine soils are on the nearby steeper upland slopes, and the Greendale soils occupy the more level areas along the drainageways.

Representative profile:

0 to 10 inches, grayish-brown friable cherty silt loam; strongly acid.

10 to 20 inches +, brownish-yellow friable cherty silt loam to cherty silty clay loam; weakly cemented in places; mottled yellow and gray in lower part.

The 10- to 20-inch layer is underlain by cherty limestone material.

This soil includes areas of less slope and also some severely eroded places containing a few shallow gullies. The small included areas differ from the rest of the soil in productivity, but they are managed the same.

This soil is strongly to very strongly acid and moderate to low in organic matter, plant nutrients, and moisture-supplying capacity. Air, moisture, and plant roots penetrate the soil easily. Chert in all layers interferes with cultivation.

Present use.—Nearly all of this soil has been cleared and used mainly for corn and lespedeza hay. Many areas are in pasture or are idle each year because they are used with the steeper Bodine soils. Crop yields are generally low because fertilizers are not commonly used. Although erosion is not a serious problem, this soil is often damaged in places by cherty material that washes from nearby steeper slopes.

Suitable uses (unit IIIe–3).—The productivity of this soil can be increased considerably by the use of suitable rotations and large quantities of fertilizer. Rotations that include row crops should be of moderate

length and consist mostly of grasses and legumes. The soil is somewhat droughty, and it is better suited to the drought-resistant or early-maturing crops.

Pickaway series

The Pickaway soils occupy gently sloping uplands in the inner Central Basin. They are moderately well drained, are moderate to low in productivity, and in most places have a fragipanlike layer below the subsoil. These soils have formed from materials that weathered from high-grade to clayey limestone, principally of the Lebanon and Ridley formations. The Pickaway soils are associated with the Talbott and the better drained Hagerstown soils. They differ from the Talbott soils in being more yellow and in lacking a heavy subsoil. Pickaway soils differ from the Captina soils in being lighter in color and in having a better developed profile.

Pickaway silt loam, eroded gently sloping phase (0 to 5 percent slopes) (Pc).—This soil occurs in the extreme eastern part of the county in association with the Hagerstown and Talbott soils and with the somewhat poorly drained variant of the Pickaway series.

Representative profile:

0 to 8 inches, light brownish-yellow friable silt loam; medium to strongly acid.
8 to 14 inches, reddish-yellow friable silt loam.
14 to 30 inches +, brownish-yellow friable silty clay loam mottled with yellow and gray; many small black concretions.

At depths of 36 to 40 inches is a brittle fragipanlike layer that grades to mottled, plastic clay. The clay is underlain by bedrock.

In some areas, local wash from nearby slopes is mixed with the surface soil. A few of the included soil areas may lack a definite fragipanlike layer below the subsoil.

This soil is medium to strongly acid and low in plant nutrients and organic matter. Internal drainage is restricted by the pan, but the upper layers are permeable to plant roots, water, and air. This soil tends to be wet in winter and early in spring but somewhat droughty in summer. Most areas have slopes between 2 and 3 percent.

Present use.—All this soil has been cleared and cultivated. Many areas are now idle or are covered by volunteer lespedeza and used as unimproved pasture. Row crops are not grown in rotation with other crops and are given only moderate amounts of fertilizers. Moisture conservation and erosion control usually include contour tillage but very little terracing.

Suitable uses (unit IIe–2).—Although suited to most of the crops commonly grown, this soil requires special management because of its low fertility and slow internal drainage. It is not well suited to alfalfa and other deep-rooted crops. Alfalfa produces fair yields if it is grown in medium-length rotations on selected sites. Row crops usually can be grown 1 year out of 2 or 3 years.

Pickaway silt loam, somewhat poorly drained variant (0 to 3 percent slopes) (Pb).—This soil occupies small irregularly shaped, slightly depressed areas on uplands in the extreme eastern part of the county. It is associated with the Talbott and the other Pickaway soils.

Representative profile follows:

0 to 6 inches, grayish-brown friable silt loam; medium acid.
6 to 12 inches, mottled gray, yellow, and brown compact silt loam; numerous brown concretions; strongly acid.
12 to 30 inches, brownish-yellow firm silty clay loam with many mottles of rust brown, brown, yellow, and gray; numerous black concretions; strongly acid.

At depths of 3 to 4 feet is mottled yellow and gray clay that overlies bedrock.

This soil is medium to strongly acid and low in organic matter and plant nutrients. Runoff is slow, and internal drainage is very slow. The soil is saturated during wet periods and is very hard and dry during droughts.

Present use.—Practically all of this soil has been cleared and is used chiefly for pasture. Small areas are generally managed like adjoining upland soils and are planted to corn, small grains, and soybeans. Generally, no special measures are used for improving drainage.

Suitable uses (unit IVs–1).—This soil is not well suited to intensive use for row crops. If properly managed, it is fair for pasture. Adequate drainage, rather than the control of erosion, is the chief management problem. The removal of excessive surface moisture through use of open ditches would allow limited yields of crops in places. The use of tile drains is probably not practical, as the subsoil is heavy and plastic.

Riverwash

Riverwash (Ra).—This miscellaneous land type generally occupies long narrow strips along swift streams. It consists chiefly of a mixture of chert, rock fragments, and soil material that was washed from surrounding slopes and deposited along the bottom lands. The content of soil material and of chert and rock fragments varies considerably. In many places, mainly where drainage is variable, this land type consists of a network of overflow channels. Included with this mapping unit are small areas that resemble the Huntington, Egam, Lindside, and Dunning soils of the bottom lands.

Present use.—Many areas of this land type are in forest, but some of the acreage has been cleared and used for pasture. Special management is not used where the soil is cultivated; yields vary.

Suitable uses.—The use suitability of this land type varies from place to place. The small better drained areas can be used as cropland, particularly if the adjacent stream channels are straightened and cleared of obstructions. Much of this land type is suitable only for pasture. Many wooded areas are best used as a source of wood products for use on the farm. This land type has not been classified as to capability.

Rockland

Rockland, sloping (2 to 12 percent slopes) (Rb).—This land type consists mainly of limestone outcrops so numerous that the areas are of little or no value for crops or permanent pasture. It occurs throughout the county. A thin stand of redcedar and drought-resistant hardwood trees covers the acreage. This forest grows in the areas of shallow soil material among the numerous rock outcrops.

This land type differs from the associated Rockland, Mimosa and Inman materials, and Rockland, Talbott material, in extent and in kind of outcrops. In these associated less stony areas, rock outcrops cover less of the land surface and fairly wide strips of soil material occur between the more nearly level and even outcrops of bedrock. In this sloping Rockland, the rocks are generally well above the surface and are separated by narrow strips of shallow soil material. These areas occur throughout the county, but they are particularly extensive in the eastern part of the county.

Present use.—This land type is generally covered by an open forest of cedar and drought-resistant hardwoods. It is not tilled, affords little pasture, and is not very productive of forest. It is pastured to limited extent, provides some wood for farm use, and is also used as building and park sites. Some areas are a potential source of agricultural and industrial limestone.

Suitable uses (unit VIIs–1).—This land type should remain in forest or be planted to trees where the soil is deep enough between outcrops of rock. The forest cover is of value in preventing excessive runoff and the deposition of soil on the adjacent lowland areas.

Rockland, steep (12 to 60 percent slopes) (Rc).—This land type is similar to Rockland, sloping, except that it has stronger slopes. It occurs throughout the county, but it is particularly extensive along the bluffs of the Duck River and its tributaries. It is associated with the same soil materials as Rockland, sloping. The present use and suitability of this mapping unit are the same as for Rockland, sloping. This land type is in capability unit VIIs–1.

Rockland, Mimosa and Inman materials, sloping (3 to 12 percent slopes) (Rd).—This land type consists of closely spaced outcrops of phosphatic limestone and fine-textured soil material in the spaces among the outcrops. The soil material ranges from a few inches to several feet in thickness and is fine textured and very droughty. In most places rock outcrops are so numerous that ordinary farm implements cannot be used for cultivation. Erosion has removed much of the shallow soil material from the stronger slopes (fig. 16). This land type occurs in the more stony areas throughout the outer Central Basin.

Present use.—The cleared acreage of this land type is used almost entirely for pasture, but a small area is in hay and corn. Wooded areas are usually grazed and are composed mainly of second-growth trees. Few areas are managed as improved pasture or for wood products. Some open pastures are clipped.

Suitable uses (unit VIs–1).—This land type is not suitable for crops, because of the rock outcrops and droughtiness. If properly managed, the soil is fair for pasture, which can be developed by properly seeding mixtures of grasses and legumes and applying large quantities of fertilizer other than phosphate.

Rockland, Mimosa and Inman materials, steep (12 to 60 percent slopes) (Re).—This land type consists of numerous outcrops of phosphatic limestone. It differs from Rockland, Mimosa and Inman materials, sloping, chiefly in having more rapid runoff, greater exposure of bedrock, and shallower depth. In most places gradients range from 12 to 25 percent.

***Figure 16.*—Rockland, Mimosa and Inman materials. The pasture on the left was overgrazed and seriously damaged by erosion.**

This land type occurs throughout the outer Central Basin in association with the Mimosa, Braxton, and Inman soils of the uplands.

Present use.—This land type is largely in forest.

Suitable uses (unit VIIs–1).—Rock outcrops, strong slope, and erosion prevent the use of this land type for crops requiring tillage. Most areas are fairly well suited to permanent pasture, but generally they are best used as woodland.

Rockland, Talbott material, sloping (2 to 12 percent slopes) (Rf).—This land type is frequently called stony land or glady land. It consists of numerous limestone outcrops that generally prevent its use for crops requiring tillage. In areas underlain by flat or level-bedded limestone, the soil material is very thin and has properties similar to those of the Talbott soils. A few areas contain rock outcrops and have deeper soil material.

Most of this land type occupies rolling slopes, but included are a few gently sloping areas. In many places, the land surface is very irregular because of sinkholes. This land type occurs mainly in the eastern part of the county in the inner Central Basin. It is associated with the Talbott and Hagerstown soils and other Rockland areas.

Suitable uses (unit VIs–1).—This mapping unit is well suited to pasture. Good grass-legume pastures can be obtained in most places by the use of lime and complete fertilizers and the careful control of grazing.

Settling basins

Settling basins (Sa).—These are pondlike basins used mainly in the washing of mined rock phosphate. The basins are constructed in locations convenient to plant operations and where water can be pumped into the basins from nearby streams or other sources. These basins range from a few acres to as much as 50 acres in size, depending on the need of the plant. Depths vary widely, as many basins are constructed in areas that have been mined.

The muddy water that is used to wash the clay

materials from the mined phosphate enters at one end of the settling basin and is pumped out at the other end. Generally, most of the clay or finer soil material has settled out of the water by the time it is pumped out and reused.

When the settling basins have filled with clay or other fine washings, they are frequently abandoned rather than cleaned out. Many are now covered by vegetation that is tolerant of swamplike conditions. In some places abandoned settling basins are cleared and used chiefly for corn. In their present condition, settling basins are of little agricultural value. If used for crops, they would be fairly hard to work, require special fertilization, and have varying drainage conditions. The washed clay is very high in phosphorus and probably very acid. Abandoned settling basins are of some commercial value because the settlings sometimes contain some phosphate materials. This land type has not been classified as to capability.

Talbott series

The Talbott series consists of moderately deep soils of uplands. They have formed from materials that weathered from moderately clayey limestone, mainly of the Lebanon formation. They occur on gently sloping to sloping areas in the inner Central Basin in association with the Hagerstown, Pickaway, and Colbert soils and with Rockland, Talbott material. In the extreme eastern part of the county, these soils have developed from parent material containing chert, and in these places small chert fragments are scattered over the surface and throughout the profile. In some places limestone outcrops are on the surface.

These soils are moderately productive and have been used for many kinds of crops. Erosion has been severe in many places because the heavy subsoil tends to cause rapid runoff.

Talbott soils differ from the Hagerstown in that they are shallower and have a heavier subsoil. They differ from the Pickaway in being darker and better drained.

Talbott silty clay loam, eroded gently sloping phase (2 to 5 percent slopes) (Ta).—This soil is in the eastern and northeastern parts of the county.

Representative profile:

0 to 8 inches, brown friable silty clay loam to silt loam; medium to strongly acid.
8 to 14 inches, reddish-yellow friable silty clay loam; contains many small, brown concretions.
14 to 26 inches +, yellowish-red firm plastic silty clay; mottles of yellow and gray in lower part; contains chert fragments.

At depths of 30 to 60 inches there is mottled plastic clay that overlies limestone bedrock.

This mapping unit varies chiefly in degree of erosion. In a few areas the plow layer now includes some of the upper subsoil. In the eastern part of the county, some of this soil is shallower and has small fragments of chert in the profile. Limestone bedrock is on the surface in many places. The variations just mentioned have little effect on management. A few areas included with this soil resemble areas of the Colbert soils.

This soil is low in plant nutrients and organic matter and medium to strongly acid. In most places the soil is fairly easy to work. The slow internal drainage through the heavy subsoil causes heavy runoff and erosion of the friable surface layer. Crops suffer more severely from drought on this soil than they do on the more open, friable Hagerstown soils.

Present use.—Practically all this soil is used for corn, wheat, and lespedeza. A small acreage is in pasture. Systematic crop rotations are not generally used. Most row crops and cash crops get fairly heavy applications of fertilizer; lime is not regularly applied.

Suitable uses (unit IIe–3).—This soil is suited to most crops grown in the area, but yields are limited chiefly by the lack of available moisture. The heavy subsoil makes this soil somewhat droughty, and corn and many other crops are damaged in summer. Erosion can be reduced by the more frequent use of close-growing crops and less use of row crops.

Talbott silty clay, severely eroded sloping phase (5 to 12 percent slopes) (Tb).—This soil differs from the Talbott silty clay loam, eroded gently sloping phase, mainly in slope and in having lost most of the original surface soil through erosion. The plow layer now consists mostly of subsoil material, which is difficult to work. A small amount of chert is on the surface and in the profile. Bedrock is at shallower depths, and outcrops of it are more numerous in this soil than in the Talbott silty clay loam.

This soil occurs as areas of moderate size, but it is extensive in the inner Central Basin. It is associated chiefly with other Talbott soils and with Rockland, Talbott material. In many places it occurs near the Hagerstown, Colbert, and Pickaway soils.

Present use.—All of this soil has been cultivated, and many areas are still used for corn and other row crops. Much of the acreage is idle or in unimproved pasture because it has been severely eroded. Yields of crops are considerably lower on this soil than on Talbott silty clay loam, eroded gently sloping phase, although the two soils are frequently used together. Talbott silty clay, severely eroded sloping phase, is more droughty, lower in plant nutrients, and more difficult to work, conserve, and maintain in productivity than Talbott silty clay loam, eroded gently sloping phase.

Suitable uses (unit IVe–1).—This soil is best suited to hay and pasture. However, it is used for row crops where it occurs with large areas of less productive soils and land types. In these places careful management is needed for the control of runoff and erosion and for the improvement of tilth and the supply of organic matter and available moisture. Heavy applications of lime and complete fertilizers are also needed.

Use and Management of Soils

In this section there is a general discussion of soil management. In addition, the soils of Maury County are grouped into capability units and the use and management of each capability unit are discussed. The average yields of principal crops grown under the prevailing management and the expected yields under improved management are given.

Capability Groups of Soils

Capability grouping is a system of classification used to show the relative suitability of soils for crops, grazing, forestry, and wildlife. It is a practical grouping based on the needs and limitations of the soils, the risks of damage to them, and their response to management. There are three levels above the soil mapping unit in this grouping. They are the capability unit, subclass, and class.

The capability unit, which can also be called a management group of soils, is the lowest level of capability grouping. A capability unit is made up of soils similar in kind of management they need, in risk of damage, and in general suitability for use.

The next broader grouping, the subclass, is used to indicate the dominant kind of limitation. The letter symbol "e" indicates that the main limiting factor is risk of erosion if the plant cover is not maintained; "w" means that excessive water retards plant growth or interferes with cultivation; "s" shows that the soils are shallow, droughty, or unusually low in fertility. In some parts of the country there is a subclass "c" for the soils that are limited chiefly by a climate that is too cold or too dry.

The broadest grouping, the land class, is identified by Roman numerals. All the soils in one class have limitations and management problems of about the same degree, but of different kinds, as shown by the subclass. All the land classes except class I may have one or more subclasses.

In classes I, II, and III are soils that are suitable for annual or periodic cultivation of annual or short-lived crops.

Class I soils are those that have the widest range of use and the least risk of damage. They are level, or nearly level, productive, well drained, and easy to work. They can be cultivated with almost no risk of erosion and will remain productive if managed with normal care.

Class II soils can be cultivated regularly, but do not have quite so wide a range of suitability as class I soils. Some class II soils are gently sloping; consequently, they need moderate care to prevent erosion. Other soils in class II may be slightly droughty or slightly wet, or somewhat limited in depth.

Class III soils can be cropped regularly but have a narrower range of use. These need even more careful management.

In class IV are soils that have greater natural limitations than those in class III, but they can be cultivated for some crops under very careful management.

In classes V, VI, and VII are soils that normally should not be cultivated for annual or short-lived crops, but they can be used for pasture or range, for woodland, or for wildlife.

Class V soils (none in Maury County) are nearly level and gently sloping, but they are droughty, wet, or low in fertility or are otherwise unsuitable for cultivation.

Class VI soils are not suitable for crops because they are steep or droughty or otherwise limited, but they give fair yields of forage or forest products. Some soils in class VI can, without damage, be cultivated enough so that fruit trees or forest trees can be set out or pasture plants seeded.

Class VII soils provide only poor to fair yields of forage or forest products and have characteristics that limit them severely for these uses.

Class VIII soils (none in Maury County) have practically no agricultural use. Some of them have value as watersheds, as wildlife habitats, or for scenery.

The soils of Maury County have been grouped into the following classes, subclasses, and units:

Class I.—Soils that are easy to farm and have no more than slight limitations in use. If intensively cultivated, special measures to control excess water or erosion are not needed. Yields are moderate to high under ordinary good soil and crop management.

- Unit I–1.—Deep, well-drained soils of bottom lands and in depressions.

Class II.—Soils that can be used for tilled crops with only moderate conservation problems or limitations.

- Subclass IIe.—Gently sloping soils that will erode if cultivated and not protected.
  - Unit IIe–1.—Gently sloping, well-drained soils.
  - Unit IIe–2.—Gently sloping, moderately well drained soils; most of them have a compact (fragipan) layer in the subsoil.
  - Unit IIe–3.—Gently sloping, moderately well drained soils with clay subsoil.
  - Unit IIe–4.—Gently sloping, well-drained, moderately deep soils of uplands.
- Subclass IIs.—Soils moderately limited by factors, such as chert or gravel, that interfere somewhat with cultivation.
  - Unit IIs–1.—Deep, well-drained cherty or gravelly soils on bottom lands along streams and small drainageways.
- Subclass IIw.—Soils moderately limited by excess water.
  - Unit IIw–1.—Deep, moderately well drained soils on bottom lands.

Class III.—Soils that have one or more serious conservation or management problems when used for tilled crops.

- Subclass IIIe.—Soils that will erode rapidly if cultivated and not protected.
  - Unit IIIe–1.—Sloping, well-drained deep soils of uplands, terraces, and colluvial slopes.
  - Unit IIIe–2.—Sloping, moderately eroded upland soils with a heavy clay subsoil.
  - Unit IIIe–3.—Moderately deep to deep, well-drained cherty soils.
- Subclass IIIw.—Soils severely limited by excess water.
  - Unit IIIw–1.—Somewhat poorly drained to poorly drained soils on first bottoms and in slight depressions.

Class IV.—Soils that have very serious limitations if cultivated and, therefore, require very careful treatment and management.

- Subclass IVe.—Soils so erodible that they can be cultivated only occasionally or under very careful management.

Unit IVe–1.—Sloping to moderately steep soils with a heavy clay layer in the subsoil.

Unit IVe–2.—Moderately deep, somewhat excessively drained cherty soils.

Unit IVe–3.—Light-brown to dark-brown, well-drained hilly soils.

Subclass IVs.—Soils severely limited by stones, bedrock, or unfavorable subsoil.

Unit IVs–1.—Shallow to moderately deep soils with heavy clay subsoils.

Class VI.—Soils best suited to permanent vegetation, usually long-producing pasture and forage, and having only moderate conservation problems when in such use.

Subclass VIe.—Deep soils that are too hilly or steep for cultivation.

Unit VIe–1.—Moderately steep, severely eroded or erodible soils.

Subclass VIs.—Soils of the rolling to hilly uplands that are too rocky, stony, or cherty for cultivation.

Unit VIs–1.—Soils that have low fertility and a low moisture-supplying capacity.

Class VII.—Soils usually best suited to trees; only the more favorable sites suited to limited grazing.

Subclass VIIe.—Extremely erodible soils and gullied land.

Unit VIIe–1.—Shallow to moderately deep, steep, severely eroded soils and land types.

Subclass VIIs.—Soils of the steep uplands that are rocky, stony, or cherty.

Unit VIIs–1.—Shallow, severely eroded, or very steep soils or land types.

Descriptions of capability units

In this section each capability unit is described and the soils in it are listed. In addition, suggestions are made on how to use and manage the soils in each unit.

Miscellaneous land types of Made land (Ma); Mine areas, reclaimed (Mr); Riverwash (Ra); and Settling basins (Sa) have a varied and complex nature which seriously limit their use for agriculture. Therefore they have not been classified or placed in capability units.

I-1: Deep, well-drained soils of bottom lands and in depressions.—The soils in this capability unit are among the most fertile in the county (table 6). In addition they are easily worked and conserved. Because of their position, these soils are occasionally flooded and covered by fresh deposits of silt or wash from nearby slopes. Damage from erosion is usually slight to none. In normal seasons there is a good supply of moisture that plants can use. The soils are readily permeable to roots, air, and moisture. Other than the Greendale soil they are moderately high in organic matter and neutral to slightly acid. Some of the soils are very high in phosphorus.

TABLE 6.—*The soils in capability unit I–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Emory silt loam, gently sloping phase	85	0	3	12
Greendale silt loam	75	0	5	20
Huntington silt loam:				
Depressional phase	80	0	5	15
Depressional phosphatic phase	80	0	5	15
Local alluvium phosphatic phase	85	1	2	12
Phosphatic phase	95	1	0	4

Suggested management: These soils can be used intensively for crops, and they are also suitable for pasture. If management is good, row crops can be grown continuously, but short rotations made up of row crops and other crops are desirable on some farms. Corn and truck crops are well suited to these soils. A winter cover of vetch, crimson clover, or a small grain should be grown on areas not subject to flooding. Where winter and spring floods occur, soybeans or other summer legumes should be grown and turned under to provide organic matter.

Fertility is easily maintained because the soils respond well to fertilizer and to soil-improving crops. The need for nitrogen and potash depends on the crops to be grown and the cropping system that has been used. Phosphate is not needed by the phosphatic phases of these soils.

These soils are easily worked, and good tilth is easily maintained. Special tillage or cropping practices are not needed to control runoff or to maintain the workability of the soils. Erosion control is needed in some areas to protect the soils from runoff and debris washed from the adjacent upland. In a few areas stream banks should be raised and the channels straightened or dredged to prevent flood damage to adjacent fields.

These soils are valuable for pasture. They are more productive during dry seasons than other soils because of their high moisture-supplying capacity. Therefore, they are well suited to pasture plants, as sudangrass and millet, which can be grown on these soils for supplemental pasture. The management of pastures consists mainly of applying fertilizer for high yields of forage, control of grazing, and mowing weeds and other competing vegetation.

IIe-1: Gently sloping, well-drained soils.—The soils in this capability unit are on uplands, stream terraces, and old colluvial slopes (table 7). They are permeable, deep, and among the most fertile soils in the county. They are also easily worked and conserved. The subsoils are friable to firm silty clay loam, and they have a large capacity to hold moisture that plants can use. They are moderately high in organic matter and medium to strongly acid. Several soils are fairly high in phosphorus. Armour cherty silt loam, eroded gently sloping phase, has chert in the plow layer that somewhat interferes with tillage.

Suggested management: These soils are suited to many kinds of crops, including corn, small grains, and tobacco.

If management is good, row crops can be grown 1 out of 2 years, or as much as 50 percent of the time, but not more than 2 years in succession. Rotations consisting of a row crop, a small grain, and 1 or 2 years of red clover or orchardgrass for hay or pasture

TABLE 7.—*The soils in capability unit IIe–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Armour silt loam:				
Eroded gently sloping phase	95	1	1	3
Eroded gently sloping terrace phase	95	0	1	4
Armour cherty silt loam, eroded gently sloping phase	90	0	1	9
Etowah silt loam:				
Eroded gently sloping phase	95	0	2	3
Eroded gently sloping phosphatic phase	95	0	1	4
Hagerstown silt loam, eroded gently sloping phase	95	0	2	3
Hermitage silt loam, eroded gently sloping phase	95	0	2	3
Maury silt loam:				
Eroded gently sloping phase	95	0	1	4
Eroded gently sloping coarse phase	92	0	2	6

(fig. 17) are well suited. Waterways should have a permanent grass cover.

All of these soils respond well to fertilizer. High yields are not so difficult to maintain as on soils of capability unit IIe–4 or on Dickson silt loam, eroded gently sloping phase, in capability unit IIe–2. Lime and potash are needed for high yields of legumes, and boron is required for alfalfa.

Good tilth is not difficult to maintain, but the soils should not be tilled when they are wet.

All cultivation should be along the contour; terracing or stripcropping should be practiced on long slopes. Irrigation of tobacco and similar high-value crops is feasible in the dry parts of the growing season. The practicability of irrigation depends on costs in comparison to returns.

All of these soils are well suited to many kinds of legumes and grasses including alfalfa, Ladino clover, orchardgrass, and fescue. If the soils are properly

Figure 17.—**Field chopping alfalfa on Hagerstown silt loam, eroded gently sloping phase, in the inner Central Basin.**

fertilized, seeded, and managed, pastures of high carrying capacity can be expected for 7 or 8 months. They are fairly well suited to growing supplemental plants, as sudangrass or millet, for summer grazing.

IIe-2: Gently sloping, moderately well drained soils; most of them have a compact (fragipan) layer in the subsoil.—The soils in this capability unit are light-colored, moderately fertile, and usually strongly acid (table 8). The upper 24 inches is permeable to air, water, and plant roots. A hard compact layer at depths of 24 to 30 inches restricts penetration of roots and the movement of air and water in all but the Donerail soil. Excessive water accumulates in the winter and spring, and it may delay planting. The compact layer also causes the soils to be somewhat droughty in summer. The Captina and Donerail soils are fairly high in phosphorus.

Suggested management: The unfavorable characteristics of these soils require that they be used with special management. All the common crops except alfalfa can be grown successfully if management is good. Small grains, crimson clover, vetch, soybeans, and sorghum are well suited to these soils. Cotton and tobacco are also well suited if grown in a rotation with other crops. In normal years, droughtiness reduces the yields from corn. Orchardgrass, fescue, bermudagrass, sericea lespedeza, annual lespedeza, and white clover or Ladino clover are well suited as hay or pasture plants. Alfalfa is usually not suitable because of unfavorable moisture conditions and the difficulty of maintaining good stands.

Moderately short rotations consisting of a row crop, a small grain, and hay can be used. Row crops can be grown as much as 50 percent of the time, but not more than 2 years in succession. The soil should not be left bare following the harvest of a row crop.

All crops require moderate to large quantities of a complete fertilizer. Lime should be applied periodically.

Good tilth is easily maintained. The mild slopes allow the use of all kinds of farm machinery. The fragipan or compact layer affects the capacity to hold moisture, and the supply of moisture for crops is sometimes short.

All cultivation should be along the contour, and waterways should remain in sod to help control the runoff. The long smooth slopes in cultivated areas should be stripcropped or terraced.

IIe-3: Gently sloping, moderately well drained soils with clay subsoils.—The soils in this capability unit

TABLE 8.—*The soils in capability unit IIe–2 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Captina silt loam, eroded gently sloping phosphatic phase	90	1	2	7
Dickson silt loam, eroded gently sloping phase	94	2	2	2
Donerail silt loam, gently sloping phase	90	0	1	9
Pickaway silt loam, eroded gently sloping phase	60	1	14	25

TABLE 9.—*The soils in capability unit IIe–3 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Braxton silt loam, eroded gently sloping phase	90	0	2	8
Hampshire silt loam, eroded gently sloping phase	75	0	10	15
Mimosa silt loam, eroded gently sloping phase	90	1	2	7
Talbott silty clay loam, eroded gently sloping phase	90	1	3	6

(table 9) are on uplands. They have light to moderately heavy surface soils and heavy clay subsoils. Clay in the subsoil restricts the growth of roots and the movement of air and moisture. Crops are damaged more by drought than those on soils in unit IIe–1. They are fairly high in mineral nutrients, low in organic matter, and medium to strongly acid. All except the Talbott are high in phosphorus, and they are all fairly desirable agricultural soils.

Suggested management: These soils are fairly well suited to most crops grown in the area. They are well suited to alfalfa, sericea lespedeza, annual lespedeza, fescue, whiteclover, bermudagrass, and orchardgrass for hay and pasture. Corn and tobacco grow fairly well, but yields may be reduced by the lack of available moisture.

Row crops should be grown in a 2- or 3-year rotation with grasses and legumes, and not more than 2 years in succession. They should be followed by a winter cover that will reduce erosion and maintain tilth. Because of clay in the subsoil, high yields are more difficult to maintain on these soils than on those of capability unit IIe–1. Additional fertilizer and organic matter are needed for high yields; all of these soils need lime.

Good tilth is moderately easily maintained, except where much of the original surface soil has been lost. Moisture is absorbed readily by the surface soil, but it percolates through the subsoil more slowly and runs off in periods of heavy rain.

The supply of organic matter should be kept high in these soils to improve their ability to absorb moisture and help prevent erosion. All cultivation should be along the contour. Many fields should be terraced or stripcropped if they are used for row crops. Waterways should have a permanent cover of grasses or of grasses and legumes.

IIe-4: Gently sloping, well-drained, moderately deep soils of uplands.—The soils of this capability unit (table 10) are light colored and moderately fertile. The surface soils are silt loam, and they readily absorb moisture. The subsoils are permeable to air, moisture, and roots. Runoff is medium, and the soils are moderately susceptible to erosion. The capacity to hold moisture that plants can use is moderately high, and the supply of moisture is generally favorable. The Hicks silt loam, eroded gently sloping phase, is somewhat sandy in the lower subsoil and may be a little droughty in summer and early in fall. This soil

TABLE 10.—*The soils in capability unit IIe–4 and estimated percentage of each in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Hicks silt loam, eroded gently sloping phase	80	0	5	15
Mountview silt loam, eroded gently sloping phase	94	2	2	2

is also high in phosphorus. The Mountview soil is leached of most plant nutrients and strongly acid. The productivity of the soils in this unit is more difficult to maintain than the productivity of soils in unit IIe–1.

Suggested management: These soils are suitable for nearly all field crops commonly grown in the county, including corn, tobacco, small grains, and many kinds of grasses and legumes. Row crops should be grown in a 2-year rotation with such close-growing crops as small grains, crimson clover, button clover, or vetch. Large quantities of fertilizer and lime are needed for high yields. A 3-year rotation consisting of a row crop followed by a small grain seeded to a legume or to a legume-grass mixture for hay or pasture is also well suited to these soils. Lime should be applied every 4 or 5 years for the successful growth of legumes.

These soils are easily worked, and good tilth is fairly easily maintained. The gentle slopes allow use of most types of heavy farm machinery. All cultivation should be on the contour; terracing or stripcropping is needed in some cultivated fields. Waterways should be kept in sod.

IIs-1: Deep, well-drained cherty or gravelly soils on bottom lands along streams and small drainageways.—The soils of this capability unit (table 11) receive fresh deposits of silt and chert when adjacent streams overflow. Thick deposits of this material are generally detrimental to the use of these soils. Where stream channels are clogged, the soils are often damaged by scouring floodwaters. Winter and early spring floods limit the crops that can be grown. These soils are moderately well supplied with lime, organic matter, and plant nutrients, and they are medium to high in phosphorus. They have a high capacity to hold moisture that plants can use.

Suggested management: Areas of these soils that are subject to flooding are best suited to corn, sorghum, soybeans, vetch, Caley-peas, or annual lespedeza. Areas not subject to flooding are also suited to these crops and to small grains and tobacco. The

TABLE 11.—*The soils in capability unit IIs–1 and estimated percentage of each in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Huntington cherty silt loam:				
Local alluvium phosphatic phase	80	2	5	13
Phosphatic phase	85	2	3	10

soils are also suited to pasture and to hay, but the harvest of hay is made difficult by chert and gravel on the surface of the soils.

Field crops can be grown almost continuously and produce good yields, but short rotations are generally desirable. A 2- or 3-year rotation of corn and lespedeza is good.

These soils respond to fertilizer, although fair to good yields of crops are obtained without any. Potash is needed for some crops, and nitrogen increases the yield of all crops, especially the yield of corn when it is grown continuously on the same land. There is not much response to the addition of phosphate.

Chert interferes with tillage, mowing, and raking, but the soils can be tilled over a wide range of moisture content. Hedges, levees, or diversion ditches may be needed to protect the soils from flood currents or from runoff originating on higher land.

IIw-1: Deep, moderately well drained soils on bottom lands.—The soils of this capability unit (table 12) are along the main streams and small drainageways and in depressions. They receive new material; some of it is deposited when streams overflow, and the rest is washed from nearby slopes. Surface drainage is generally slow, and many areas are flooded or ponded during winter and early in spring. These soils are moderate to high in natural fertility, but they respond well to proper fertilization. Some of the soils are medium to high in phosphorus.

Suggested management: Imperfect drainage and the hazard of flooding limit the kinds of crops that can be grown. If adequately drained, these soils are well suited to corn, soybeans, sorghum, and annual lespedeza. Flooding tends to make small grains more subject to disease and lodging, and they generally mature later on these soils than on soils of the uplands. Alfalfa is grown successfully in places, but generally the soils are poorly suited to it.

These soils can be used continuously for row crops but should be protected by winter cover crops in areas not subject to overflow. Areas subject to scouring by swift-flowing waters should be kept in close-growing vegetation and used for hay or pasture. Although a suitable row crop can be grown successfully year after year, a 2- or 3-year rotation made up of a row crop and other crops is well suited and desirable on some farms.

Fair to good yields are obtained without amendments, but most of the soils respond well to fertilizer.

TABLE 12.—*The soils in capability unit IIw–1 and estimated percentage of each in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Egam silty clay loam, phosphatic phase	94	0	1	5
Godwin silt loam	90	1	3	6
Lindside silt loam:				
Local alluvium phase	80	0	5	15
Local alluvium phosphatic phase	80	0	3	17
Phosphatic phase	85	1	2	12
Lindside cherty silt loam, phosphatic phase	75	2	5	18

Lime and phosphate are generally needed to establish and maintain legumes and grasses, but the phosphatic phases will not need phosphate. Moderate amounts of potash are needed for some crops, the actual amount depending on previous crops and the cropping systems that have been used on these soils. Nitrogen is supplied by legumes in amounts sufficient to allow moderate yields of the first row crop following the legume. Nitrogen is needed for high yields of corn if the crop is grown on soils that have been used for row crops. Organic matter can be maintained by applying crop residues, green manure, or barnyard manure to areas that do not receive beneficial deposits of silt.

Good tilth is easily maintained without special tillage or cropping practices. These soils can be tilled over a wide range of moisture content without serious injury. However, chert in some soils and the compactness of the Egam and Godwin soils may cause difficulty in tillage.

In places surface drainage can be improved by running rows toward drainageways on slight gradients. Field bedding is sometimes used. Open ditches or tile are needed to drain water from pockets or depressions. Hedges, levees, or diversion ditches should be used to protect these soils from flood currents and runoff from higher land.

These soils stay moist and productive in dry seasons; consequently, they are good for pasture and for adapted plants, as sudangrass or millet, which can be grown for supplemental summer grazing. They are seldom used for pasture, however, because they are so well suited to intensive cropping. Fescue, Ladino clover, white clover, orchardgrass, and bermudagrass are well suited as pasture plants. Management of pastures includes control of grazing, spreading of droppings, and the mowing of weeds and other competing vegetation.

IIIe-1: Sloping, well-drained, deep soils of uplands, terraces, and colluvial slopes.—Soils of this capability unit (table 13) have a light to moderately heavy surface soil and a friable to firm silty clay loam subsoil. They are among the most fertile of the sloping eroded soils in the county, and some of them are high in phosphorus. This unit includes some gravelly and cherty soils. These soils, and the severely eroded sloping soils, are only moderately good for crops and pasture. They differ from those in capability unit IIe–1 chiefly in slope and erosion. The rate and amount of runoff are higher; consequently, the soils in this unit are more susceptible to erosion than those in unit IIe–1.

Suggested management: These soils are suited to nearly all of the commonly grown crops. They are not so well suited to row crops or to close-growing crops that require annual preparation of seedbed as are the soils in capability unit IIe–1. If management is good, satisfactory yields can be expected from corn, tobacco, red and crimson clovers, vetch, and small grains.

The soils in this capability unit cannot be used so intensively as those in unit IIe–1 because they are more susceptible to erosion. Row crops should be grown about one-third of the time in a rotation with close-growing crops. A row crop should generally be followed by 2 or more years of grasses and legumes.

TABLE 13.—*The soils in capability unit IIIe-1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Armour silt loam, eroded sloping phase	90	0	1	9
Armour silty clay loam, severely eroded sloping phase	60	2	13	25
Armour cherty silt loam, eroded sloping phase	60	2	15	23
Armour cherty silty clay loam, severely eroded sloping phase	20	5	30	45
Armour gravelly silty clay loam, severely eroded sloping terrace phase	45	5	20	30
Etowah silt loam, eroded sloping phosphatic phase	90	0	2	8
Etowah gravelly silty clay loam:				
Severely eroded sloping phase	80	1	4	15
Severely eroded sloping phosphatic phase	60	1	9	30
Hagerstown silty clay loam, severely eroded sloping phase	70	1	9	20
Hermitage silt loam, eroded sloping phase	90	0	2	8
Hicks silt loam, eroded sloping phase	75	0	10	15
Maury silt loam, eroded sloping coarse phase	90	0	2	8
Maury silty clay loam:				
Eroded sloping phase	90	0	1	9
Severely eroded sloping coarse phase	75	0	5	20

The frequent inclusion of such deep-rooted crops as sericea or alfalfa is beneficial. A rotation consisting of corn the first year, small grain the second year, and red clover seeded with orchardgrass the third and fourth years is well suited to these soils. Alfalfa for 2 or 3 years can be substituted for the red clover and orchardgrass.

All these soils respond well to fertilizers. Lime and potash are especially needed for high yields of legumes. Alfalfa needs boron.

Good tilth is easily maintained on most of these soils. It can be maintained and improved by growing grass, deep-rooted legumes, and green-manure crops. Fall plowing sometimes improves tilth, but it may cause erosion. On the severely eroded areas, tillage is difficult unless the moisture content of the soil is just right. Chert in the surface layer of some of these soils also interferes with plowing, mowing, or raking.

All tillage should be on the contour. Terraces are advisable on most soils if row crops are grown frequently and the lay of the land allows their proper construction and maintenance. Stripcropping is desirable on the longer or steeper slopes where terraces are not practical.

All these soils are well suited to many kinds of hay and pasture plants, including alfalfa, Ladino and white clovers, orchardgrass, and fescue. Pastures respond well to lime and fertilizer. Barnyard manure is helpful in starting pastures on severely eroded spots. After a pasture is established, the legume in the plant mixture should supply most of the nitrogen needed for high yields. A mixture of orchardgrass and Ladino or white clover is well suited to these soils if a high level of fertility is maintained. Redtop and annual lespedeza are easier to establish and maintain at low levels of fertility. Pastures should be clipped to control weeds.

IIIe-2: Sloping, moderately eroded upland soils with a heavy clay subsoil.—Soils in this capability unit (table 14) have a silty surface soil, but they are underlain by a heavy subsoil. Clay in the subsoil restricts the movement of air and water and the growth of plant roots. The moisture-supplying capacity of the subsoil is low. External drainage from these soils is good, but internal drainage is fairly slow. The soils are low in organic matter, medium to strongly acid, and fairly well supplied with mineral plant nutrients. They are also high in phosphorus.

Suggested management: These soils are fairly well suited to most of the commonly grown crops, including corn, tobacco, small grains, and many grasses and legumes. These soils cannot be used so intensively as those in capability unit IIe-3, because they have stronger slopes and greater susceptibility to erosion. A row crop can be grown safely every 3 or 4 years if the soils are properly fertilized and other management is good. Suitable rotations consist of a row crop followed by a small grain crop and red clover or a row crop followed by a legume-grass mixture for 2 or 3 years. Winter cover crops should always follow row crops.

These soils respond well to lime and to fertilizers except phosphate. The supply of organic matter should be increased and kept fairly high because of clay in the subsoil.

Good tilth is fairly easily maintained except where much of the original surface soil is gone. Chert in some areas interferes with tillage.

Row crops should be planted in strips alternating with close-growing crops. Sloping fields used for row crops should be terraced if proper structures and suitable outlets can be built and maintained. Waterways should be kept permanently in grass.

These soils are well suited to many kinds of legumes and grasses seeded in mixtures for hay and pasture. Management should include the mowing of weeds and control of grazing. Chert on the surface may interfere with mowing.

IIIe-3: Moderately deep to deep, well-drained cherty soils.—Soils of this capability unit (table 15) occupy slopes that are mostly in the range of 5 to 12 percent. Chert on the surface interferes with tillage and mowing. The quantity of it in the profile increases with the depth of soil. The chert helps prevent erosion and allows the soil to absorb moisture more readily. Most

TABLE 14.—*The soils in capability unit IIIe-2 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Braxton silty clay loam, eroded sloping phase	88	1	2	9
Mimosa silty clay loam, eroded sloping phase	85	1	3	11
Mimosa cherty silt loam, eroded sloping phase	70	2	8	20

TABLE 15.—*The soils in capability unit IIIe-3 and the estimated percentage in various uses*

Soil	Culti-vated	Forest	Idle	Pas-ture
Dellrose cherty silt loam, eroded sloping phase	55	2	15	28
Frankstown cherty silt loam, eroded sloping phase	50	5	25	20
Mountview silt loam:				
Sloping shallow phase	2	95	1	2
Eroded sloping shallow phase	50	2	20	28
Pace cherty silt loam, eroded sloping phase	55	5	15	25

of the soils are moderate to low in plant nutrients and in the capacity to hold moisture that plants can use. The Frankstown and Dellrose soils are usually medium to high in phosphorus. All of the soils are acid.

Suggested management: Chertiness and the low capacity to supply enough moisture for plants reduce the desirability of these soils for crops. Corn, tobacco, and small grains are fairly well suited. Sorghum, annual lespedeza or sericea lespedeza, and other drought-resistant crops grow well.

These soils need nitrogen and potash for most crops. The response to fertilizers is good when it is applied in seasons of normal rainfall. Some of the soils in this unit respond well to phosphate. Lime is necessary to establish and maintain legumes.

These soils are only moderately easy to till. Chert on the surface interferes with tillage and mowing. Crops should be grown that need a minimum of tillage and that can be harvested without the use of a combine. The removal of chert would greatly improve tillage, but this is practical only in the small patches used for truck crops.

All cultivation should be on the contour, and the stronger slopes ought to be planted in strips to help prevent erosion. Slopes should be terraced if proper structures and suitable outlets can be built and maintained. All waterways should be kept permanently in grasses and legumes.

On many farms these soils are more suitable for pasture than for crops, especially if they are in small areas and are associated with hilly or steep soils. Orchardgrass, .alfalfa, red clover, white clover, and fescue are well suited if a high level of soil fertility is maintained. Grazing should be controlled and weeds mowed. Chert on the surface may make mowing difficult.

Sites for farm ponds should be selected with care because some of the subsoils that contain chert do not hold water.

IIIw-1: Somewhat poorly drained to poorly drained soils on first bottoms and in slight depressions.—Soils in this capability unit (table 16) are dark gray to black and are underlain by a heavy subsoil. The soils normally are wet and periodically covered by fresh deposits of alluvial material. They are high in plant nutrients and organic matter and slightly acid to neutral in reaction. Some of the soils are high in phosphorus. Clay in the subsoil prevents the circulation of air and moisture.

TABLE 16.—*The soils in capability unit IIIw-1 and the estimated percentage in various uses*

Soil	Culti-vated	Forest	Idle	Pas-ture
Burgin silt loam, phosphatic phase	50	25	10	15
Burgin silty clay loam:				
Gently sloping phase	65	5	10	20
Gently sloping phosphatic phase	70	2	13	15
Dunning silty clay loam, phosphatic phase	55	3	20	22
Dunning and Lindside silty clay loams	60	5	15	20

Suggested management: These soils are very productive and, if adequately drained, can be used for intertilled crops each year. They are good for corn, sorghum, sudangrass, or soybeans. Sorghum and soybeans are sometimes grown without artificial drainage. Winter crops of vetch, crimson clover, and small grains can be grown where the soils are not flooded in winter.

Lime is generally not needed on these soils, but potash is required for most crops. All the soils except the phosphatic phases respond to phosphate.

These soils are easily tilled when they contain the proper amount of moisture. Natural drainage is slow, and the soils are usually too wet for tillage early in spring. Artificial drainage improves the suitability and the average yields of crops. Open ditches or tile are suitable to drain off excessive surface water. Drainage sometimes can be provided by bedding the soil and running rows on a slight grade. In a few places, hedges or levees are needed to protect these soils from flood currents.

These soils are moist during the dry parts of the growing season and for this reason are well suited to permanent pasture. They are especially valuable as summer pasture. Fescue, Ladino clover, annual lespedeza, bermudagrass, and alsike clover are well suited to hay and pasture (fig. 18), but alfalfa is generally

Figure 18.—Drainage of Dunning soils makes them suitable for excellent pasture of fescue and white clover.

TABLE 17.—*The soils in capability unit IVe-1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Braxton silty clay loam, eroded moderately steep phase	60	2	8	30
Braxton cherty silty clay loam, severely eroded sloping phase	55	0	15	30
Etowah gravelly silty clay loam, severely eroded moderately steep phosphatic phase	25	2	23	50
Inman and Hampshire silty clay loams, severely eroded sloping phases	20	1	19	60
Mimosa silty clay, severely eroded sloping phase	50	0	10	40
Mimosa cherty silt loam, eroded moderately steep phase	45	2	8	45
Mimosa cherty silty clay loam, severely eroded sloping phase	40	0	15	45
Talbott silty clay, severely eroded sloping phase	50	3	12	35

not grown. Management should include the mowing of weeds and other competing vegetation.

IVe-1: Sloping to moderately steep soils with a heavy clay layer in the subsoil. —Soils in this capability unit (table 17) are generally moderately deep to a heavy clay subsoil layer that may contain chert or gravel. The heavy subsoil layer restricts the penetration of air and moisture and the growth of plant roots. Severely eroded areas are sticky when wet and hard when dry. The plow layer absorbs rainfall slowly, and runoff is generally rapid. These soils are moderately low in organic matter, are medium to strongly acid, and tend to be droughty in normal seasons. All the soils except the Talbott are phosphatic.

Suggested management: These soils are not well suited to cultivation because of undesirable characteristics. They are best suited to hay or pasture, and should be seeded to fescue, orchardgrass, bermudagrass, sericea lespedeza, whiteclover, or annual lespedeza. These soils can be cultivated 1 year out of about every 5 or 6 years. A cover crop of small grain, sorghum, or soybeans should follow an intertilled crop.

All these soils respond well to lime and fertilizers. The soils that are medium to high in phosphorus do not respond to phosphate fertilizers. Soil amendments are necessary to maintain good stands of forage plants after they have been established.

These soils are only moderately difficult to till, and many of them must be tilled within a relatively narrow range of moisture content.

Stripcropping and contour tillage should be practiced where feasible. Terraces usually are not suitable on many of these soils because they are too steep. Drainageways should be kept in sod.

IVe-2: Moderately deep, somewhat excessively drained cherty soils.—Soils of this capability unit (table 18) have chert on the surface and throughout the profile. The amount of chert increases with depth. Chert interferes with tillage and makes the soils droughty. All the soils in this unit are acid and

TABLE 18.—*The soils in capability unit IVe-2 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Bodine cherty silt loam:				
Sloping phase	0	98	0	2
Eroded sloping phase	15	2	33	50
Frankstown cherty silt loam:				
Moderately steep phase	1	95	1	3
Eroded moderately steep phase	30	5	25	40
Mountview silty clay loam, severely eroded sloping shallow phase	20	5	35	40

moderate to low in plant nutrients and in their capacity to hold moisture that plants can use.

Suggested management: These soils are suited best to hay and pasture and should be seeded to whiteclover, fescue, bermudagrass, annual lespedeza, or sericea lespedeza. Row crops should be grown only about every 5 or 6 years. Small grains and sorghum are well suited, but corn usually is seriously damaged by drought.

These soils need nitrogen, potash, and phosphate for most crops. A good response is obtained if fertilizers are applied in seasons of adequate rainfall. Lime is also generally needed for high yields.

These soils are moderately difficult to till. Most of the slopes are too steep for the use of combines and other large farm implements. Chert on the surface interferes with tillage and mowing. All cultivation should be on the contour, and in places stripcropping is needed. All waterways should be kept in grasses and legumes. The establishment of permanent pastures requires the use of lime and complete fertilizers. Weeds in pastures should be controlled by mowing.

Farm ponds should be located with care, as many subsoils containing chert do not hold water.

IVe-3: Light-brown to dark-brown, well-drained hilly soils.—Soils of this capability unit (table 19) have formed mainly from materials that have rolled or sloughed from higher slopes. The Dellrose soils contain an abundance of chert, and the Culleoka soil has fragments of shale or sandstone in the profile. Coarse fragments of stone in the surface soil and the subsoil allow the soils of this unit to absorb rainfall. As a result, these soils are less susceptible to erosion than other soils on similar slopes. All the soils are medium to high in phosphorus. In normal seasons the supply of moisture is sufficient for most crops.

TABLE 19.—*The soils in capability unit IVe-3 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Culleoka loam, eroded moderately steep phase	40	3	17	40
Dellrose cherty silt loam:				
Eroded moderately steep phase	50	3	17	30
Eroded steep phase	30	5	25	40

TABLE 20.—*The soils in capability IVs–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Ashwood rocky silt loam, gently sloping phase	50	10	15	25
Ashwood rocky silty clay loam, eroded sloping phase	25	20	15	40
Colbert silty clay loam, eroded gently sloping phosphatic phase	50	2	28	20
Hagerstown rocky silty clay loam, eroded gently sloping phase	85	1	5	9
Pickaway silt loam, somewhat poorly drained variant	30	2	18	50

Suggested management: These soils are best suited to pasture or hay and should be seeded to orchardgrass, fescue, alfalfa, sericea lespedeza, or red clover. Row crops should be grown about every 5 or 6 years. Small grains grow well, and corn and tobacco are sometimes grown. Fertility can be maintained without much difficulty. Most crops respond well to lime and to fertilizers other than phosphate.

The steepness of slope makes most soil areas difficult to work, and coarse fragments of rock in the plow layer interfere with tillage. All cultivation should be on the contour. The stronger slopes, if used for other than pasture, should be stripcropped to prevent further erosion. Waterways should be kept in sod.

The yields of forage in pastures can be maintained by periodically applying lime and fertilizer. Many areas now in forest should not be cleared.

IVs-1: Shallow to moderately deep soils with heavy clay subsoils.—Soils in this capability unit (table 20) are underlain by limestone at depths ranging from 10 to 30 inches. In many places limestone bedrock is on the surface. The soils tend to be droughty in normal seasons. The heavy subsoil is hard when dry and plastic when wet. Water is slowly absorbed, and runoff is rapid. Consequently, the soils are easily damaged by erosion. The clayey subsoil is not easily penetrated by air, moisture, or plant roots. Soils in this capability unit are moderate to low in fertility. The Ashwood and Colbert soils, however, are medium to high in phosphorus.

Suggested management: These soils are very poorly suited to row crops. Permanent pasture seeded to fescue, whiteclover, annual lespedeza, bermudagrass, or sericea lespedeza is the best use of the soils. Alfalfa is suited to the favorable sites on the Hagerstown soils. Hay or a small grain is sometimes grown, but the harvest of these crops is difficult. Row crops should be grown only about every 5 or 6 years. The better sites can be used for sorghum and soybeans.

Yields of crops or forage can be increased by use of soil amendments, but the response from these soils is considerably less than that from deeper and more friable soils. Forage yields are high in spring and in early summer when temperatures and rainfall are favorable. However, pastures do not grow much late in summer or early in fall.

All cultivation should be on the contour. The stronger slopes, if used for other than pasture, should be stripcropped to prevent erosion. Terraces are not generally feasible because the soil is shallow and stony. Ponded surface water on the Pickaway soil should be drained by open ditches. Waterways should be kept in sod. The shallower and more stony soils should be in forests consisting mainly of cedar.

VIe-1: Moderately steep, severely eroded or erodible soils.—Erosion has removed the original surface soil from most of the soils in this capability unit (table 21). The plow layer now consists mainly of heavy silty clay material, or it contains large quantities of coarse fragments of shale, sandstone, or chert. Most of the soils are low in natural fertility and lime and are badly leached and droughty. All of the soils except the Bodine are phosphatic and do not respond to phosphate. The Dellrose soil is very high in phosphorus, and it is the most productive. The capacity to hold moisture that plants can use is low.

Suggested management: These soils are poorly suited to crops that require tillage, but they are suitable in varying degrees for pasture. Sericea lespedeza, fescue, annual lespedeza, bermudagrass, and other drought-resistant plants can be grown satisfactorily if management is good. After the fertility of the soil has been improved, alfalfa and orchardgrass can be grown fairly well in mixtures with other forage plants.

Liberal quantities of lime and fertilizer should be applied at regular intervals for high yields of forage. Phosphate is generally needed the most, but nitrogen is also needed if the pasture mixture does not include a legume. These soils do not respond so well to fertilizers as those that are less steep and less eroded.

Long steep slopes should be seeded to pasture over a 2-year period. The first-year pasture should be sown in alternating contour strips to prevent erosion. Water should be diverted from gullies or other critical areas when establishing a sod cover. Management of pastures should include the control of weeds and grazing.

Severely eroded areas that cannot be managed well for pasture should be planted to loblolly or shortleaf pine. Areas in trees should be protected from fire and grazing and managed as forests.

TABLE 21.—*The soils in capability unit VIe–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Bodine cherty silt loam:				
Moderately steep phase	2	95	1	2
Eroded moderately steep phase	3	2	35	60
Braxton cherty silty clay, severely eroded moderately steep phase	15	5	25	55
Culleoka clay loam, severely eroded moderately steep phase	10	3	30	57
Dellrose cherty silt loam, severely eroded moderately steep phase	15	10	30	45
Inman shaly silty clay loam, severely eroded moderately steep phase	10	5	25	60
Mimosa cherty silty clay loam, severely eroded moderately steep phase	15	3	22	60

TABLE 22.—*The soils in capability unit VIs–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Ashwood rocky silty clay, severely eroded sloping phase	15	5	30	50
Colbert silty clay, severely eroded sloping phosphatic phase	10	5	35	50
Culleoka flaggy loam, eroded moderately steep phase	5	10	25	60
Culleoka flaggy clay loam, severely eroded moderately steep phase	5	5	35	55
Frankstown coarse cherty silt loam:				
Sloping phase	0	98	1	1
Eroded sloping phase	15	5	35	45
Moderately steep phase	0	99	0	1
Eroded moderately steep phase	10	5	25	60
Hicks flaggy silt loam, eroded sloping phase	10	10	20	60
Rockland, Mimosa and Inman materials, sloping	10	30	15	45
Rockland, Talbott material, sloping	25	15	20	40

VIs-1: Soils that have low fertility and a low moisture-supplying capacity.—Unit VIs–1 consists of soils and miscellaneous land types (table 22) that are severely eroded or subject to severe erosion, have steep slopes, are stony, or have some combination of unfavorable characteristics. Most of the soils have coarse fragments of stone scattered over the surface and in the profile or frequent outcrops of limestone rock. Nearly all areas are droughty in normal season.

Suggested management: These soils are not well suited to intertilled crops. They vary greatly in the degree of suitability for pasture, but pastures can be established and maintained if management is good. Sericea lespedeza, fescue, whiteclover, annual lespedeza, redtop, and bermudagrass are suitable for pastures or hay. Orchardgrass and alfalfa are not well suited.

Many of these soils and miscellaneous land types are phosphatic. However, liberal quantities of lime and fertilizer are needed for the establishment and maintenance of pastures. The response to fertilizers is not so great on these soils as on deep soils of high moisture-supplying capacity.

These soils are hard to till because of slopes, rocks, and the heavy subsoil. They should be plowed or disked only to prepare a seedbed for the reestablishment of pasture. Long slopes should be seeded in alternate contour strips. Runoff should be diverted from critical areas by use of hillside or diversion ditches.

Forestry is the best use for much of this capability unit. Loblolly and shortleaf pine are the species suitable for planting in areas that need revegetating. Areas now in trees should not be cleared.

VIIe-1: Shallow to moderately deep, steep, severely eroded soils and land types.—Soils of this capability unit (table 23) can be safely used only if they are in permanent vegetation. They are usually strongly acid and low in organic matter and most plant nutrients. They absorb but little rainfall and yield much runoff because they are stony and steep. The capacity to hold moisture that plants can use is low; consequently, the soils are generally droughty in normal seasons.

TABLE 23.—*The soils in capability unit VIIe–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Bodine cherty silt loam, steep phase	5	65	20	10
Gullied land	0	50	40	10
Gullied land, phosphatic	0	60	30	10
Inman shaly silty clay loam, severely eroded steep phase	5	5	30	60
Mines, pits, and dumps	0	20	70	10

Suggested management: Many areas of these soils and land types are still in forest, but the rest of the acreage should be planted in trees. Pine is best for the poor sites, but many operators prefer to plant black locust because of their need for fence posts. Loblolly pine is the best species for good sites and will grow rapidly. Shortleaf pine is best on the less favorable sites, particularly those that have a southern or western exposure. Virginia pine is best for the sites offering the poorest growing conditions. Locust is fairly well suited to soils that are high in phosphorus, but the damage caused by insects limits the usefulness of this species. All forested areas should be protected from fire and grazing and harvested selectively.

These soils are not suitable for pasture, but economic and social factors on and off the farm cause them to be used for pasture. A limited amount of grazing can be obtained from pastures on the better soils and land types if grazing is controlled and large quantities of fertilizer are used. Good sites on small odd areas can be planted in bicolor and sericea species of lespedeza to improve the soil and to furnish food and cover for wildlife.

VIIs-1: Shallow, severely eroded or very steep soils or land types.—Soils and land types in this capability unit (table 24) have outcrops or coarse fragments of rock in quantities that seriously interfere with or prohibit tillage. They are generally low in organic matter and natural fertility and strongly acid. Runoff is usually rapid. The capacity to hold water that

TABLE 24.—*The soils in capability unit VIIs–1 and the estimated percentage in various uses*

Soil	Cultivated	Forest	Idle	Pasture
Culleoka flaggy loam, eroded steep phase	2	5	23	70
Culleoka flaggy clay loam, severely eroded steep phase	1	10	39	50
Frankstown coarse cherty silt loam, steep phase	5	65	15	15
Rockland, Mimosa and Inman materials, steep	2	70	8	20
Rockland:				
Sloping	0	90	3	7
Steep	0	95	3	2

plants can use is low, and the soils are droughty in normal seasons.

Suggested management: These soils are not suitable for cultivation, and they are poorly suited to pasture. They are best for trees.

Loblolly or shortleaf pine grows well on the better sites, and Virginia pine is suited to the poorer sites. Black locust grows well on the phosphatic soils. However, the leaf miner and the locust borer are insect pests harmful to black locust and to the quality of posts harvested from infested trees. Yellow-poplar, walnut, or black and red oak can be planted on the better sites, particularly on the northern and eastern exposures in deep, well-drained colluvial soil. These sites usually occur as small areas in draws or at the foot of slopes. In some of the cleared acreage of these soils, particularly the Rockland areas, a suitable forest cover of cedar may establish itself if the area is protected from fire and grazing. Areas already forested should be protected from fire and grazing and the mature trees harvested selectively. Cull and weed trees should be eliminated.

Permanent pastures on the better sites provide good grazing if given lime and large quantities of fertilizer. Bermudagrass, fescue, and either sericea or annual lespedeza are the most suitable pasture plants. Grazing should be controlled. Shade from widely spaced locust or walnut trees is beneficial to pasture plants.

Estimated Yields

The estimated average yields that can be expected from the principal crops grown on soils of Maury County under two levels of management are given in table 25.

Most of the yields in columns A are estimated for the management that commonly prevails where the soil predominantly occurs. This level of management often reflects improper fertilization, the use of lower yielding varieties, a poor system of crop rotation, improper erosion control practices, or insufficient control of plant diseases and insect pests. A few crops, such as tobacco and alfalfa, are generally managed at a higher level because of their exacting requirements, but some crops, as well as permanent pasture, receive little treatment in the form of lime or fertilizer.

Most of the estimated yields in columns B are those that are expected by local farmers when improved management practices are used. Improved or good management practices include choosing a suitable crop for the soil, using high-yielding varieties, liming and fertilizing according to soil tests and crop needs, proper tillage methods, and supplementary water-control practices.

Improved management for each soil is more fully discussed in the section Capability Groups of Soils. In that section the soils that require about the same kind of management are placed in the same capability unit and suitable methods of management are described for each unit.

[3] Prepared by G. B. Shivery, extension forester, University of Tennessee.

Forests[3]

Maury County was originally covered by forests, but most of the soils suitable for cultivation were gradually cleared. The present forests are mainly in the Highland Rim. Cedar forests occur in the Central Basin on soils too rocky or too eroded to cultivate. Soils that are steep, cherty, and of low fertility are best suited to forestry. Many areas of the county should remain in forest, but better management is needed to improve their productivity. The direct benefits of good forest management are obtained from the greater cash value of timber. Among the indirect benefits is protection of the soils from erosion.

Management

The following practices are essential for the improvement of forests in this county: (1) Prevention of fires, (2) control of grazing, and (3) selective harvest of trees.

The prevention of fires and control of grazing are necessary for good tree growth, maximum soil porosity, and erosion control. Fire prevention requires that all people be cautious while in the forest, particularly when conditions are critical in spring and fall. Vigilance and care by local people and hunters will help prevent fires.

Grazing in the woodlands does not pay. Experiments in Wisconsin show that woodland pasture on 15 to 35 percent slopes produces only one-fifth as much forage an acre as open pasture and less than 10 percent as much as renovated pasture (*1*). Forage produced in the shade of trees was less palatable to livestock than comparable forage from open areas. Experiments in Indiana show that farm animals grazed on 2, 4, and 6 acres of woodland per animal unit, without supplemental feed, deteriorated seriously over a 6-month period (*6*). Repeated browsing gradually slows tree growth, kills small trees, and prevents forest reproduction. Compaction of the soil and disturbance of the humus decrease soil porosity and water absorption.

Improper harvesting of timber has left many forested areas with too few seed trees for reproduction of the good species. The cutting of commercially valuable young trees removes them at a time when they are growing rapidly, and the quality and quantity of forest growth is thus reduced. The harvest of trees on a selection basis removes trees that are mature and those that are unsound, crooked, short, and bushy topped. The trees left will grow rapidly and be worth more to the owner. The inferior trees can be used for fuel, pulpwood, or chestnut extraction wood.

Reforestation

Soils that have been cleared and are steep, eroded, or otherwise unsuitable for crops should be reforested. Some areas may reforest naturally if seed trees of desirable species are growing nearby. Severely eroded, hilly, and steep soils are more economically reclaimed by planting tree seedlings.

TABLE 25.—*Estimated average yields per acre of the principal crops under two levels of management*

[Yields in columns A are those obtained under common management, and yields in columns B are those expected under improved management. Dotted lines indicate the crop is not commonly grown at the management level indicated]

Soil	Corn		Wheat		Tobacco		Alfalfa		Pasture	
	A	B	A	B	A	B	A	B	A	B
	Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Armour cherty silt loam:										
Eroded gently sloping phase	45	85	17	28	1,200	1,700	2.5	3.5	100	155
Eroded sloping phase	25	65	11	20	950	1,500	2.2	3.1	80	140
Armour cherty silty clay loam, severely eroded sloping phase	20	45	9	14	750	------	[2] .8	[2] 1.6	60	120
Armour gravelly silty clay loam, severely eroded sloping terrace phase	18	45	7	12	750	------	[2] .8	[2] 1.6	65	130
Armour silt loam:										
Eroded gently sloping phase	55	95	23	35	[3] 1,322	[3] 1,876	3.0	4.4	120	165
Eroded sloping phase	45	85	16	25	1,050	1,650	2.6	3.8	105	155
Eroded gently sloping terrace phase	55	[3] 99	14	[3] 22	1,400	[3] 1,989	2.8	4.2	115	165
Armour silty clay loam, severely eroded sloping phase	25	50	12	20	800	1,200	1.8	2.6	85	135
Ashwood rocky silt loam, gently sloping phase	------	------	------	12	------	------	[2] .5	[2] 1.2	60	105
Ashwood rocky silty clay, severely eroded sloping phase	------	------	------	------	------	------	------	[2] 1.0	35	60
Ashwood rocky silty clay loam, eroded sloping phase	------		------	10	------	------	[2] .4	[2] 1.0	50	95
Bodine cherty silt loam:										
Sloping phase	------	------	------	------	------	------	------	------	------	------
Eroded sloping phase	10	25	------	8	------	------	[2] .5	[2] 1.2	35	60
Moderately steep phase	------	------	------	------	------	------	------	------	------	------
Eroded moderately steep phase	------	------	------	------	------	------	[2] .4	[2] 1.0	30	45
Steep phase [4]	------	------	------	------	------	------	------	------	------	------
Braxton silt loam, eroded gently sloping phase	30	70	19	30	1,100	1,650	2.6	3.5	90	135
Braxton cherty silty clay, severely eroded moderately steep phase	------	------	------	------	------	------	[2] .4	[2] 1.0	35	70
Braxton cherty silty clay loam, severely eroded sloping phase	18	40	6	10	750	------	[2] .5	[2] 1.0	50	105
Braxton silty clay loam:										
Eroded sloping phase	22	60	12	20	900	1,400	2.2	3.0	70	120
Eroded moderately steep phase	------	35	7	12	------	------	1.8	2.5	60	115
Burgin silt loam, phosphatic phase	------	------	------	------	------	------	------	------	55	100
Burgin silty clay loam:										
Gently sloping phase	------	------	------	------	------	------	------	------	60	105
Gently sloping phosphatic phase	------	------	------	------	------	------	------	------	65	110
Captina silt loam, eroded gently sloping phosphatic phase	35	70	10	18	1,000	1,600	------	3.0	100	150
Colbert silty clay, severely eroded sloping phosphatic phase	------	------	------	------	------	------	[2] .4	[2] 1.0	35	60
Colbert silty clay loam, eroded gently sloping phosphatic phase	12	35	6	10	------	------	[2] .7	[2] 1.5	60	105
Culleoka loam, eroded moderately steep phase	18	45	9	14	------	------	------	2.5	55	105
Culleoka clay loam, severely eroded moderately steep phase	------	------	------	------	------	------	[2] .5	[2] 1.1	45	75
Culleoka flaggy clay loam:										
Severely eroded moderately steep phase	------	------	------	------	------	------	------	------	40	70
Severely eroded steep phase [4]	------	------	------	------	------	------	------	------	------	------
Culleoka flaggy loam:										
Eroded moderately steep phase	------	------	------	------	------	------	------	------	50	85
Eroded steep phase	------	------	------	------	------	------	------	------	45	75
Dellrose cherty silt loam:										
Eroded sloping phase	25	65	12	20	950	1,500	2.2	3.1	80	140
Eroded moderately steep phase	20	50	9	16	------	------	2.0	2.8	70	125
Severely eroded moderately steep phase	------	------	------	------	------	------	[2] .4	[2] 1.0	45	75
Eroded steep phase	15	40	------	12	------	------	[2] .6	[2] 1.2	60	100
Dickson silt loam, eroded gently sloping phase	30	70	14	22	1,000	1,550	------	2.8	85	120
Donerail silt loam, gently sloping phase	40	80	16	28	1,100	1,650	2.0	3.0	100	150
Dunning and Lindside silty clay loams	------	50	------	------	------	------	------	------	90	135
Dunning silty clay loam, phosphatic phase	------	------	------	------	------	------	------	------	55	100
Egam silty clay loam, phosphatic phase	45	85	------	------	1,000	1,500	------	------	145	160
Emory silt loam, gently sloping phase	55	100	20	32	1,400	2,000	3.0	4.0	155	175
Etowah silt loam:										
Eroded gently sloping phase	45	90	20	32	1,200	1,900	2.8	4.3	100	150
Eroded gently sloping phosphatic phase	50	90	22	35	1,300	2,000	2.9	4.3	110	160
Eroded sloping phosphatic phase	40	80	15	25	1,050	1,650	2.6	3.8	95	145
Etowah gravelly silty clay loam:										
Severely eroded sloping phase	17	40	8	16	700	------	[2] .6	[2] 1.3	60	120
Severely eroded sloping phosphatic phase	19	40	7	12	750	------	[2] .6	[2] 1.3	65	125
Severely eroded moderately steep phosphatic phase	------	------	------	------	------	------	[2] .5	[2] 1.0	40	95

See footnotes at end of table.

TABLE 25.—*Estimated average yields per acre of the principal crops under two levels of management*—Continued

Soil	Corn A	Corn B	Wheat A	Wheat B	Tobacco A	Tobacco B	Alfalfa A	Alfalfa B	Pasture A	Pasture B
Frankstown cherty silt loam:										
Eroded sloping phase	20	55	8	14	800	1,300	2.0	2.6	75	110
Moderately steep phase	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eroded moderately steep phase	15	30	6	10	-----	-----	[2].7	[2]1.5	50	85
Frankstown coarse cherty silt loam:										
Sloping phase	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eroded sloping phase	-----	-----	-----	-----	-----	-----	[2].6	[2]1.4	55	85
Moderately steep phase	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eroded moderately steep phase	-----	-----	-----	-----	-----	-----	-----	-----	45	75
Steep phase	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Godwin silt loam	45	80	11	24	1,100	1,600	-----	-----	150	165
Greendale silt loam	55	90	13	28	1,100	1,800	2.8	3.8	120	150
Gullied land [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Gullied land, phosphatic [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Hagerstown silt loam, eroded gently sloping phase	45	90	20	33	1,300	1,900	.8	4.3	105	155
Hagerstown silty clay loam, severely eroded sloping phase	22	50	10	18	800	1,200	1.8	2.5	70	125
Hagerstown rocky silty clay loam, eroded gently sloping phase	20	45	8	16	850	1,250	2.3	3.1	75	120
Hampshire silt loam, eroded gently sloping phase	18	45	7	18	800	1,100	[2].7	[2]1.5	65	115
Hermitage silt loam:										
Eroded gently sloping phase	55	95	21	32	1,350	1,950	3.0	4.2	115	165
Eroded sloping phase	45	85	16	25	1,000	1,600	2.5	3.6	100	155
Hicks flaggy silt loam, eroded sloping phase	-----	-----	-----	-----	-----	-----	-----	-----	45	90
Hicks silt loam:										
Eroded gently sloping phase	20	50	10	20	900	1,200	-----	2.8	70	115
Eroded sloping phase	15	40	8	14	700	1,000	-----	2.5	55	105
Huntington silt loam:										
Phosphatic phase	60	110	-----	-----	1,400	1,900	-----	-----	160	180
Local alluvium phosphatic phase	55	100	21	32	1,450	2,000	3.0	4.0	160	180
Depressional phase	60	110	18	30	1,200	1,800	2.8	3.6	155	175
Depressional phosphatic phase	60	110	18	30	1,250	1,800	2.9	3.8	165	185
Huntington cherty silt loam:										
Phosphatic phase	50	90	-----	-----	1,100	1,600	-----	-----	130	150
Local alluvium phosphatic phase	45	80	15	26	1,200	1,700	2.4	3.2	135	155
Inman and Hampshire silty clay loams, severely eroded sloping phases	-----	-----	-----	-----	-----	-----	[2].4	[2]1.0	40	80
Inman shaly silty clay loam:										
Severely eroded moderately steep phase	-----	-----	-----	-----	-----	-----	[2].4	[2]1.0	30	60
Severely eroded steep phase [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Lindside silt loam:										
Phosphatic phase	55	95	-----	-----	-----	-----	-----	-----	155	170
Local alluvium phase	40	85	10	24	-----	-----	-----	-----	145	165
Local alluvium phosphatic phase	40	80	11	24	-----	-----	-----	-----	150	165
Lindside cherty silt loam, phosphatic phase	30	70	-----	-----	-----	-----	-----	-----	110	130
Maury silt loam:										
Eroded gently sloping phase	50	90	[3]22	[3]35	[3]1,367	[3]2,017	[3]2.9	[3]4.3	110	160
Eroded gently sloping coarse phase	45	85	19	32	1,200	1,700	2.7	3.9	100	150
Eroded sloping coarse phase	35	75	15	22	900	1,400	2.4	3.2	80	135
Maury silty clay loam:										
Eroded sloping phase	40	80	17	25	1,050	1,650	2.6	3.8	95	155
Severely eroded sloping coarse phase	22	50	9	16	800	1,100	1.6	2.4	60	120
Mimosa silt loam, eroded gently sloping phase	22	60	14	25	1,100	1,650	2.4	3.2	85	130
Mimosa silty clay, severely eroded sloping phase	15	35	6	10	-----	-----	[2].5	[2]1.2	45	95
Mimosa silty clay loam, eroded sloping phase	20	50	8	18	900	1,400	2.2	3.0	65	120
Mimosa cherty silt loam:										
Eroded sloping phase	18	45	7	14	900	1,400	2.0	3.0	65	120
Eroded moderately steep phase	15	35	6	10	-----	-----	[2].7	[2]1.4	60	110
Mimosa cherty silty clay loam:										
Severely eroded sloping phase	12	30	-----	-----	-----	-----	[2].5	[2]1.0	45	95
Severely eroded moderately steep phase	-----	-----	-----	-----	-----	-----	[2].4	[2]1.0	30	60
Mines, pits, and dumps [4]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mine areas, reclaimed	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mountview silt loam:										
Eroded gently sloping phase	35	75	12	25	1,050	1,600	2.0	3.2	90	125
Sloping shallow phase	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eroded sloping shallow phase	18	40	7	14	800	1,200	[2].6	[2]1.3	50	95
Mountview silty clay loam, severely eroded sloping shallow phase	-----	-----	5	10	-----	-----	[2].4	[2]1.0	30	50
Pace cherty silt loam, eroded sloping phase	20	55	6	12	750	1,400	1.8	2.5	60	105
Pickaway silt loam:										
Eroded gently sloping phase	18	45	9	16	800	1,200	-----	-----	65	110
Somewhat poorly drained variant	-----	-----	-----	-----	-----	-----	-----	-----	55	85

TABLE 25.—*Estimated average yields per acre of the principal crops under two levels of management*—Continued

Soil	Corn		Wheat		Tobacco		Alfalfa		Pasture	
	A	B	A	B	A	B	A	B	A	B
Riverwash	-----	-----	-----	-----	-------	-------	-----	-----	-------	-------
Rockland:										
Sloping [4]	-----	-----	-----	-----	-------	-------	-----	-----	-------	-------
Steep [4]	-----	-----	-----	-----	-------	-------	-----	-----	-------	-------
Rockland, Mimosa and Inman materials:										
Sloping	-----	-----	-----	-----	-------	-------	[2] .4	[2] 1.0	35	60
Steep	-----	-----	-----	-----	-------	-------	-----	-----	30	40
Rockland, Talbott material, sloping	-----	-----	-----	-----	-------	-------	[2] .4	[2] 1.0	35	60
Settling basins	-----	-----	-----	-----	-------	-------	-----	-----	-------	-------
Talbott silty clay loam, eroded gently sloping phase	20	55	12	22	1,000	1,500	2.2	3.0	80	125
Talbott silty clay, severely eroded sloping phase	12	35	5	10	700	-------	[2] .5	[2] 1.2	40	95

[1] Cow-acre-days is the number of days a year 1 acre will graze a mature animal (cow, horse, or steer) without injury to the pasture.
[2] Yields are for sericea lespedeza. Alfalfa is not suited to these soils.
[3] Actual plot yields obtained from the Middle Tennessee Experiment Station in Maury County.
[4] Best suited to forest.

Planting is necessary if volunteer seeding by desirable species of trees does not take place. It is particularly important to plant trees that are suitable for the particular soil. Difficult sites should be prepared for planting by breaking and mulching galled areas, building low check dams of brush in gullies, and plowing contour furrows.

Ordinarily, black locust is preferred for reforestation by farmers in need of material for fence posts. Locust grows rapidly where soils are well drained and aerated, as behind check dams in gullies. Native locust growing on Mimosa and Dellrose soils produces more durable fence posts than those harvested from trees grown from nursery stock.

Pine is better suited to the severely eroded soils. Loblolly pine is suited to the sites that still have some of the original surface soil. Shortleaf pine is better suited to sites that have south and west exposures, and Virginia pine should be planted where growing conditions are most severe. Redcedar should be encouraged on suitable sites in the Central Basin.

Other Benefits

In addition to the production of wood, forests have indirect benefits. A protective layer of forest litter absorbs the impact of rain and preserves the tiny pores and channels between the soil particles. Fungi, bacteria, and tiny animals that consume the forest litter and each other produce humus, which improves the physical structure and fertility of the soil. The litter and humus also have great ability to absorb water directly. Porosity is further increased by the channels left when dead roots decay. The soil-binding function of the roots near the surface is highly beneficial, but the densest root development is in the lower part of well-developed layers of litter.

The conservation experiment station near Statesville, N. C., reports that virgin woods lost only 0.002 ton of soil per acre and 0.06 percent loss of the rainfall in runoff (*5*). A woods plot that was burned over twice a year lost 3.08 tons of soil per acre and 11.5 percent of the rainfall; an unburned woods plot lost 0.001 ton of soil per acre and 0.06 percent of the rainfall.

Similar experiments were made at Zanesville, Ohio, for a 9-year period on cultivated land, pasture, and woodland. Runoff was 20.6 percent on cultivated land, 13.8 percent on pasture, and 3.2 percent on woodland. Soil losses per acre were 17.18 tons from cultivated land, 0.10 ton from pasture, and 0.01 ton from woodland (*4*).

These experiments show that a complete forest cover controls erosion and absorbs the most water. The soil under an old-growth forest is more porous and absorbs water more rapidly than that in a cultivated field. If a second-growth forest cover is properly maintained, the soil does not lose its porosity unless it is overgrazed or the litter is destroyed by fire (*3*).

Morphology, Genesis, and Classification of Soils

Soil is the product of soil-forming processes acting on materials deposited or accumulated by geologic agencies. The characteristics of a soil at any given point are determined by (1) the physical and mineralogical composition of the parent material; (2) the climate under which the soil material has accumulated and existed since it accumulated; (3) the plant and animal life in and on the soil; (4) the relief, or lay of the land; and (5) the length of time these forces have acted on the soil material.

Climate and vegetation are the active factors that change the parent material and gradually form a soil. They act on the parent material and change it from a mass of inert material into a body with genetically related horizons. They are the two most important forces in the development of zonal soils. Climate directly affects the weathering of parent material and the rate of water percolation through the soil. Indirectly, climate is responsible for the types and variations of plant and animal life.

The forces of climate acting alone on parent materials, without living organisms, are largely destructive

and result in the loss of soluble and some colloidal materials. But climate and living organisms acting together on the parent materials are largely constructive. A reversible cycle between intake and outgo of plant nutrients is established. Soil organisms decompose raw plant waste and incorporate it into the soil. Plants serve as a source of organic matter and bring plant nutrients from lower to upper soil horizons.

Relief modifies, in varying degrees, the influence that climate and vegetation have on parent materials. The lay of the land affects drainage, the quantity of water that percolates through the soil, the rate of natural erosion, and, to some extent, the type of vegetation in the area. The parent material also affects the kind of profile that can be formed and, in extreme cases, determines it almost entirely.

Finally, time is necessary for parent material to develop into soil and to bring about the various degrees of profile development. The degree of such development depends not only on time, but also on the rate of the actions of climate and vegetation, as influenced by relief and parent material.

The interrelationships among the factors of soil formation are complex, and, therefore, the effects of any one factor are hard to isolate with certainty. The purpose of this section is to present the most important morphological characteristics of the soils of Maury County and to relate them to the factors of soil formation. The first part of this section deals with the environment under which the soils exist; the second, with the classification of soils.

Factors of Soil Formation in Maury County

Maury County lies in the northern part of the Red-Yellow Podzolic soils region of the United States and near the southern edge of the Gray-Brown Podzolic soils region (*10*). Many of the zonal soils that have developed in the county belong in the Red-Yellow Podzolic great soil group, but several well-developed, well-drained soils in the Central Basin resemble the Gray-Brown Podzolic soils, particularly in color. In many soils of the county, red and yellow are more prominent colors than brown.

The county is in two parts of the Interior-Low Plateau physiographic province: The Central Basin (also called Nashville Basin) and the Highland Rim (*7*). The eastern part of the county is in the Central Basin, and the western edge is in the Highland Rim.

Climate and vegetation are the factors of soil formation that tend to be uniform throughout the county. Therefore, parent material, relief, and time account for the principal differences among the soils.

Parent materials

Many of the soil differences in the county are directly related to the kind of parent material and the manner in which it was deposited. The parent materials of the soils of Maury County are in two broad classes: (1) Materials residual from the weathering of rocks in place and (2) materials transported by water, wind, or gravity and laid down as unconsolidated deposits of clay, silt, sand, and rock fragments. Residual materials are related directly to the underlying rocks from which they have weathered; transported materials, to the soils or rocks from which they were washed or blown.

The parent materials of upland soils were formed in place. They consist of residues of limestone and shale that weathered from massive rock formations underlying the county. These rock formations are level bedded. They vary greatly in age, or from lower Ordovician to Mississippian.

Geologically, the rock formations of the Highland Rim are very cherty limestone and comparatively resistant to weathering. The soils have developed mainly in residual materials from siliceous limestone, but there is evidence that a thin deposit of windblown silt or loesslike material had been deposited over the cherty limestone residuum. The morphology of the soils in the Highland Rim area is closely correlated with the character of the relief.

The Central Basin is underlain by soluble and nearly chertfree limestone that varies from high grade to argillaceous. Many rock formations in this area are high in phosphorus.

In general, the characteristics of soils developed in place, that is from residual materials, show a relationship to the parent rock. Soils of the Maury and Inman series, for example, have developed in residuum from phosphatic limestone and shale of the Bigby and Hermitage formations. Soils of the Dickson and Mountview series have developed in a thin layer of loesslike material that overlies the cherty limestone residuum. Figures 3, 5, 7, 9, 10, and 12 show how many of the soil series in the county are related to the rocks under them.

Transported parent materials consist of general alluvium and local alluvium. In Maury County the soils of terraces and bottom lands and old and young colluvial lands were formed from alluvium.

General alluvium is of two kinds: Old and young. All the stream valleys in the county are filled with deposits of old to very young general stream alluvium. Alluvial deposits consist mainly of material that weathered from limestone or material that has washed from soils developed from limestone residuum. The soils of terraces—the Etowah, Armour, and Captina—consist of old general alluvium. The soils on flood plains or of bottom lands—the Huntington, Lindside, and Egam—consist of young general alluvium (see fig. 12).

Local alluvium is also of two kinds: Old and young. It has washed or slumped into sinkholes or depressions on uplands and occurs along the heads of small drainageways.

The Greendale soils consist mainly of local alluvium derived from the residuum of cherty limestone (see fig. 3). The local alluvium phases of the Huntington and the Lindside soils consist of material derived from high-grade phosphatic limestone and high-grade limestone (see fig. 12).

Although a fairly consistent relationship exists between the parent material and the properties of the soils, some soil properties must be attributed to other factors.

Climate

Maury County has a warm, humid, temperate, continental type of climate. The climate is uniform, but, because of moderate differences in elevation, there is a slight variation in the occurrence and severity of frosts. In general, precipitation is distributed fairly evenly over the county.

The temperature and rainfall favor fairly intense leaching of minerals and bases. The soils are frozen to shallow depths for only short periods, so weathering and translocation of materials continue almost uninterruptedly. Climatic conditions also hasten the decomposition of organic matter; consequently, only small amounts accumulate in the soils.

Many soil characteristics common to most of the mature soils in the county—low amounts of lime and many other bases, moderate to low amounts of organic matter, strong weathering of parent material, and the reddish and brownish colors that indicate strong oxidation—are caused by the uniform action of the climatic agencies on the soil material.

Small local differences in climate caused by variations in slope and exposure affect the formation of soils. On the slopes that face the south and west the average daily and annual soil temperatures are higher than on slopes that face north and east. Soil temperatures are also higher on the steeper slopes. The average moisture content of the soils is less on the south and west slopes than on the north and east slopes. These local differences in moisture and temperature affect the length of time the soil is frozen and the growth of vegetation. The differences are small, but they are significant and are probably responsible for some of the local variations in soils derived from similar parent materials.

Climate has been the cause of many outstanding characteristics of the well-developed and well-drained soils that have formed within a climatic zone. However, the climate in this county does not differ enough to have caused the broad differences in many of the soils. The climate of Maury County has characteristics common to that of the Red-Yellow Podzolic and Gray-Brown Podzolic soils regions of the United States, as soils of both great soil groups occur in close association. It is apparent that differences in parent material, drainage, slope, and age have been of primary importance in determining the great soil groups to which the soils belong.

Plant and animal life

Plant and animal life living on and in the soil are active agencies in the soil-forming processes. The nature of the changes that these various biological forces bring about depends, among other things, on the kinds of life and the life processes peculiar to each. The kinds of plants and animals that live on and in the soil are determined by environmental factors, including climate, parent material, relief, age of the soil, and the associated organisms. In this way, climate exerts a powerful indirect influence on the morphology of soils. Climate and vegetation acting together are the active factors of soil genesis.

In Maury County, there were probably differences in the density of forests, in the percentage of species, and in the associated ground cover. In general, the forests appear to have been relatively uniform. A forest of hardwoods mixed with cedar occupied most of the well-drained, well-developed soils. It is doubtful that marked differences in the well-drained, well-developed soils are the direct result of differences in vegetative cover.

The deciduous trees that commonly grew in this area were moderately deep to deep feeders. The leaves of deciduous trees are high in content of bases compared to the leaves of coniferous trees. Consequently, the plant nutrients returned to the soils in fallen leaves were greater in this county than in more podzolized soil regions farther north. Many of the essential plant nutrients taken by plants from the subsoil were returned to the surface soil, and this had the effect of reducing the rate of leaching by percolating water.

Much organic material is added to the soil by leaves, twigs, roots, and dead animals. Most of this material is added to the surface of the A_1 horizon, where it is acted upon by micro-organisms and other forms of life and by direct chemical reactions. Most soils of the county originally had a layer of organic debris in various stages of decomposition on the surface. The A_1 horizon contained moderate amounts of organic matter, the A_2 contained less, and the B horizon contained very low amounts.

The effects of plants and soil organisms are very important in soil genesis.

Relief

Many soils of the county do not have well-developed chracteristics, because relief prevents normal profile development. Relief is largely the product of geologic weathering and erosion of rock formations that underlie the county. Gradients range from nearly level to very steep. Elevations range from about 550 feet above sea level where the Duck River leaves the county in the Central Basin to more than 1,000 feet on the Highland Rim near Theta.[4] The upland of the Highland Rim is an old dissected high plateau having sharp local relief, on which elevations vary from 200 to 300 feet. The lower lying Central Basin is less dissected and more uniformly peneplained. Gradients range from gently sloping to moderately steep, but the relief is increased by occasional monadnocks and small hills, many of which are remnants from the Highland Rim.

In some steep areas large amounts of water run off and small amounts are absorbed by the sod. The large amounts of runoff contribute to fairly rapid geologic erosion. As a result, there is a constant mixing or renewal of soil material. The soils that develop under these conditions are young, and the changes brought about by vegetation and climate are so slight that the soils are essentially shallow, or lithosolic.

In some nearly level areas where both internal and external drainage are slow or where geologic erosion is very slow and parent materials have been in place a long time, the soils have developed profile characteristics that differentiate them from well-developed,

[4] Elevations from U. S. Geological Survey topographic maps.

well-drained soils. In level or gently sloping areas where recent alluvium has been in place only a short time, most of the soils have poorly defined or no genetic horizons.

Time

The land surface of the county is very old. The upland areas have been exposed to the action of climatic and biological agencies for a long time. The exposed rock materials are strongly weathered and have lost many of their bases.

The thickness of soils is partly a function of time. The age or maturity of a soil depends on the degree of horizon differentiation. It is generally believed that the older and more mature soils have thicker, more contrasting, and more numerous horizons than the younger soils.

Parent materials in place a long time and not affected by extremes in relief, texture, or chemical characteristics develop into mature soils. Soils of this type are called zonal soils, and they have characteristics common to those in the Red-Yellow Podzolic or Gray-Brown Podzolic great soil groups.

Parent materials that have been in place only a short time, as those along flood plains of creeks, develop into soils that have poorly defined or no genetic horizons. They have few if any of the characteristics of zonal soils and, therefore, are called azonal soils.

Time is an important factor in the formation of soils; it reflects the degree to which a soil has developed into a natural body in equilibrium with its environment. The effect of time as a factor is dependent on the degree of action by the forces of climate and vegetation as influenced by relief and parent materials.

Classification of Soils

The soils of Maury County are classified in three orders—zonal, intrazonal, and azonal.

Zonal soils occur on gently sloping, well-drained uplands. They have developed from parent materials that are not extreme in texture or in chemical composition. Soil characteristics are well developed and reflect the influence of the active factors of soil genesis—climate and living organisms. Relief and age have had the least influence on the development of zonal soils.

In virgin conditions the well-drained, well-developed soils of the county have a surface layer of organic debris in varying stages of decomposition. All have the dark-colored A_1 horizon. The subsurface layer, or A_2 horizon, is lighter in color than the A_1 or the B. The subsoil, or B horizon, is generally uniformly colored yellow, brown, or red and contains more clay than the A_1 or A_2. The parent material, or C horizon, is variable in color and texture among the different soils of the county. It is usually light red or yellow, mottled or streaked with gray or brown.

Intrazonal soils are associated geographically with the zonal soils but have characteristics that reflect the dominating influence of some local factor of relief, parent material, or age over the normal effects of climate and vegetation (*10*). The intrazonal soils in this county have well-developed morphological characteristics that reflect the dominating influence of relief and time on parent material.

Azonal soils are defined as a group of soils without well-developed soil characteristics either because of their youth or because of conditions of parent material or relief that have prevented the development of normal soil characteristics (*10*). Azonal soils are characterized by a surface layer, or A_1 horizon, that is generally moderately dark colored. They lack a subsoil, or B horizon, and have parent material usually lighter in color than the A_1 horizon. The parent material may be similar to, lighter than, or heavier than the A_1 horizon in texture.

Azonal soils are often referred to as A-C soils because of the absence of a B horizon. In some steep areas where geologic erosion has been rapid, or along flood plains where soil-forming factors have brought about only slight changes in profile development, the soils are young and are classified as azonal soils.

Soils of each of the three orders—zonal, intrazonal, and azonal—may be derived from similar kinds of parent materials. Within any one of these orders, major differences among soils appear to be closely related to differences in relief and the kinds of parent materials from which the soils were derived. The thickness of soils developed from residual materials is partly a result of the resistance of the underlying rock to weathering, the volume of residue after weathering, and the rate of geologic erosion. The chemical and physical nature of the parent material modifies the rate and direction of chemical changes that result from climate and vegetation. The kind of parent material also exerts a pronounced influence on the kinds of vegetation that grow on the soil. Rocks have also contributed to differences among soils through their effects on relief.

Table 26 shows the classification of the soil series in Maury County according to soil orders and great soil groups and some of the factors that have contributed to differences in morphology.

Zonal soils

The zonal soils in Maury County are subdivided into the Red-Yellow Podzolic and the Gray-Brown Podzolic great soil groups.

RED-YELLOW PODZOLIC SOILS

The Red-Yellow Podzolic soils have a low accumulation of organic matter on the surface, a deep horizon of eluviation, and a deep, thick illuviated horizon in which the high amount of oxidation and hydration of iron produces bright red and yellow colors. High temperature and fairly heavy rainfall accelerate the decay of minerals and organic matter and the rate of leaching of soluble materials. The Red-Yellow Podzolic soils are divided into red members and yellow members.

Red members

The red members of the Red-Yellow Podzolic great soil group have organic and organic-mineral layers over a yellowish-brown leached layer that rests upon an illuvial red horizon (*10*). The soil-forming

TABLE 26.—*Classification of soil series by higher categories and factors that have contributed to differences in s*

ZONAL SOILS

Great soil group and series	Relief	Parent material	Drainage	Color, texture, and cons	
				Surface soil	
Red-Yellow Podzolic:					
Red members:		Residuum from—			
Braxton	Gently sloping to moderately steep.	Phosphatic limestone; some chert.	Good	Dark-brown silt loam; friable	Stror silt firr
Maury	Gently sloping to sloping	High-grade phosphatic limestone.	Good	Dark-brown silt loam; friable	Yello silt
Donerail	Gently sloping	High-grade phosphatic limestone.	Moderately good	Dark-brown silt loam; friable	Stror mo to
Hagerstown	Gently sloping to sloping	High-grade limestone	Good	Brown silt loam; friable	Yello fri
Talbott	Gently sloping to sloping	Clayey limestone	Good to moderately good.	Brown silty clay loam to silt loam; friable.	Redd silt firr
		Old local alluvium from—			
Hermitage	Gently sloping to sloping	High-grade limestone	Good	Dark-brown silt loam; friable	Yello cla
Armour	Gently sloping to sloping	High-grade phosphatic limestone.	Good	Dark reddish-brown silt loam; friable.	Stror silt
		Old stream alluvium chiefly from—			
Etowah	Gently sloping to moderately steep.	Limestone	Good	Brown silt loam; friable	Yello cla
Yellow members:		Residuum from—			
Hampshire	Gently sloping to sloping	Phosphatic sandy limestone and shale; chiefly shale.	Moderately good to good.	Light yellowish-brown silt loam; friable.	Stror mo cla
Hicks	Gently sloping to sloping	Phosphatic sandy limestone and shale.	Good	Light yellowish-brown silt loam; very friable.	Redd fri
Mimosa	Gently sloping to moderately steep.	Clayey phosphatic limestone.	Moderately good to good.	Brown silt loam; friable	Redd lov silt
Mountview	Gently sloping to sloping	Cherty limestone and wind-blown silt.	Good	Grayish-brown silt loam; very friable.	Redd cla
		Old local alluvium from—			
Pace	Sloping	Very cherty limestone	Good to moderately good.	Grayish-brown cherty silt loam; friable.	Brow silt loa
Gray-Brown Podzolic:		Residuum from—			
Frankstown	Sloping to steep	Cherty limestone and phosphatic shale.	Good to excessive	Brown to dark yellowish-brown cherty silt loam; friable.	Stror che cla
		Old colluvium from—			
Culleoka	Moderately steep to steep	Phosphatic sandy limestone	Good to excessive	Brown loam; very friable	Brow abl
Dellrose	Sloping to steep	Cherty limestone with phosphatic influence.	Good	Dark-brown cherty silt loam; friable.	Stror che

INTRAZONAL SOILS

Planosol:		Windblown silt overlying residuum from—			
Dickson	Gently sloping	Cherty limestone	Moderately good	Light brownish-gray silt loam; very friable.	Yello loa to
		Residuum from—			
Pickaway	Nearly level to gently sloping.	Clayey limestone	Moderately good	Light brownish-yellow silt loam; friable.	Redd low cla
		Old stream alluvium from—			
Captina	Gently sloping	Chiefly limestone	Moderately good	Dark yellowish-brown silt loam; friable.	Yello low fria
Rendzina:		Residuum from—			
Ashwood	Gently sloping to sloping	Clayey phosphatic limestone.	Moderately good to somewhat poor.	Very dark gray silt loam; friable	Brow cla

AZONAL SOILS

Lithosol:		Residuum from—			
Bodine	Sloping to steep	Very cherty limestone	Excessive to good	Light-gray cherty silt loam; very friable.	Brow low silt
Inman	Sloping to steep	Phosphatic sandy limestone and shale, chiefly shale.	Excessive to good	Light yellowish-brown silty clay loam; friable.	Stron loa
Colbert	Gently sloping to sloping	Very clayey limestone with phosphatic influence.	Somewhat poor to moderately good.	Brown silty clay loam; friable	Brow low firn
Alluvial:		Young local and stream alluvium from—			
Huntington	Level to gently sloping	High-grade phosphatic limestone.	Good	Dark-brown silt loam; friable	Brow loa
Lindside	Level to gently sloping	High-grade limestone	Moderately good to somewhat poor.	Brown silt loam; friable	Dark cla
		Young stream alluvium from—			
Egam	Level to nearly level	High-grade phosphatic limestone.	Moderately good to good.	Very dark grayish-brown silty clay loam; friable to firm.	Dark mo cor
Dunning	Level to nearly level	Clayey limestone with phosphatic influence in places.	Poor to somewhat poor.	Very dark gray to black silty clay loam; firm.	Very bla pla
		Young local alluvium from—			
Emory	Nearly level to gently sloping.	High-grade limestone	Good	Reddish-brown silt loam; friable	Yello cla
Greendale	Nearly level to gently sloping.	Cherty limestone and some silty material.	Good to moderately good.	Light yellowish-brown silt loam; very friable.	Stron silt fria
Godwin	Nearly level to gently sloping.	Clayey limestone with phosphatic influence.	Moderately good to good.	Very dark gray silt loam; friable	Black firn
Burgin	Nearly level to gently sloping.	Clayey limestone with phosphatic influence.	Somewhat poor to poor.	Very dark grayish-brown silty clay loam; friable.	Black silt

processes involved in the development of the red members are podzolization and laterization.

In Maury County the red members of the Red-Yellow Podzolic soils are the Braxton, Maury, Donerail, Hagerstown, Talbott, Etowah, Hermitage, and Armour. They differ in degree of maturity, but all are old enough to have formed moderately well developed Red-Yellow Podzolic profiles. Profile differences are not primarily the result of differences in slope. Many differences, however, can be correlated with differences in parent materials.

Braxton Series

The soils of the Braxton series are moderately deep and have heavy textured B_2 and C horizons. They have developed from materials that weathered from highly phosphatic limestone containing chert impurities. A few rock outcrops occur in severely eroded places. Braxton soils are closely associated with the Maury and Mimosa soils.

A Braxton profile in a permanent pasture follows:

A_p 0 to 6 inches, dark-brown (10YR 4/3)[5] to dark yellowish-brown (10YR 4/4) silt loam; weak medium crumb structure; friable; medium acid; layer ranges from 4 to 8 inches in thickness.

A_3 6 to 10 inches, dark-brown (7.5YR 4/4) heavy silt loam; weak medium subangular blocky structure; friable; few small, round, black concretions; medium acid; layer ranges from 3 to 5 inches in thickness.

B_1 10 to 18 inches, yellowish-red (5YR 5/8) to strong-brown (7.5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable to firm; many small, rounded, black concretions; few angular fragments of cherty parent material; few medium distinct variegations of yellow and rust brown; medium to strongly acid; layer ranges from 6 to 10 inches in thickness.

B_2 18 to 30 inches +, yellowish-red (5YR 5/8) silty clay; moderate medium subangular to angular blocky structure; firm; numerous small, rounded, black concretions; appreciable quantities of angular fragments of cherty parent material ¼ to 2 inches in diameter; mottled yellow and gray in lower part.

The profile grades to cherty clay and phosphatic limestone at depths of 2½ to 4 feet.

Maury Series

The Maury soils have developed from materials that weathered from high-grade phosphatic limestone. Their depth to limestone bedrock varies considerably, but it generally ranges from 4 to 10 feet. They occupy gently sloping to sloping relief. Maury soils are well developed and among the more productive soils in the county. They are high in plant nutrients, especially phosphorus. The dark color of the A_1 horizon indicates that the soil supported luxuriant vegetation. In many places the underlying phosphatic limestone is interbedded with shale, and on steeper slopes it was the parent material for Inman soils. In other areas the limestone contains cherty impurities, and on stronger slopes it was the parent material for the Braxton soils.

Profile of Maury silt loam in a slightly eroded, gently sloping, permanent pasture south of Ashwood:

A_p 0 to 10 inches, dark-brown (10YR 3/4) to reddish-brown (5YR 4/4) silt loam; weak to moderate medium crumb to fine granular structure; friable; slightly acid; layer ranges from 8 to 12 inches in thickness.

A_3 10 to 14 inches, dark-brown (7.5YR 4/4) heavy silt loam; weak medium subangular blocky structure; friable; slightly acid; layer ranges from 3 to 5 inches in thickness.

B_1 14 to 26 inches, strong-brown (7.5YR 5/6) to yellowish-red (5YR 4/8) silty clay loam; moderate medium subangular blocky structure; friable; many very small, round, black concretions; medium acid; layer ranges from 10 to 14 inches in thickness.

B_2 26 to 36 inches, yellowish-red (5YR 4/6) heavy silty clay loam; moderate medium subangular to angular blocky structure; friable to firm; many small, round, black concretions; some fragments of parent material; medium to strongly acid; layer ranges from 8 to 12 inches in thickness.

C 36 to 42 inches +, yellowish-red (5YR 4/8) silty clay to very fine sandy clay; moderate medium subangular to angular blocky structure tending toward platy; firm; lenses of partially weathered fragments of limestone; strongly acid.

Phosphatic limestone bedrock is at depths of 3½ to 10 feet.

Donerail Series

The Donerail soils are similar to the Maury soils in many characteristics but are less well drained. They have developed from similar phosphatic parent materials and occupy gently sloping uplands in close association with the Maury soils. The A horizon of the Donerail soils consists of dark-brown friable silt loam and is about 10 inches thick. The upper B horizon is strong-brown friable silty clay loam. The lower B horizon to a depth of about 30 inches is a mottled reddish-yellow firm silty clay loam. It is underlain by phosphatic limestone at depths of 3 to 5 feet.

Hagerstown Series

The deep, well-drained Hagerstown soils have developed from materials that weathered from fairly high-grade limestone, principally the Carters and Ridley limestones. They occupy nearly level to sloping uplands in association with the Talbott and Pickaway soils. Solums shallower than that described below occur in nearly level areas with rock outcrops in the eastern part of the county. Profiles among the rock outcrops, however, are similar to the one given.

A Hagerstown profile in a cultivated area:

A_p 0 to 10 inches, brown (7.5YR 5/4) to dark-brown (7.5YR 4/4) silt loam; moderate medium crumb structure; friable; medium acid; layer ranges from 8 to 12 inches in thickness.

B_1 10 to 30 inches, yellowish-red (5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable to firm; small, round, black concretions common; a few small fragments of chert in lower part; medium to strongly acid; layer ranges from 16 to 24 inches in thickness.

B_2 30 to 40 inches, yellowish-red (5YR 5/6 to 5/8) silty clay loam to light silty clay; moderate medium subangular blocky to angular blocky structure; many small, black, rounded concretions; a few faint yellow mottlings and the number increases with depth; few small fragments of chert; strongly acid; texture becomes heavier with depth; layer contains some fragments of limestone.

High-grade limestone is at depths of 3 to 6 feet.

Talbott Series

Soils of the Talbott series have heavy-textured B and C horizons, a property that is associated with the

[5] Symbols in parentheses are Munsell coordinates (hue, value, and chroma) of the colors observed.

argillaceous limestone from which they have developed. They are relatively thin to limestone bedrock, most of which is Lebanon limestone. They occupy gently sloping to sloping relief in association with the Hagerstown, Pickaway, and Colbert soils. The Talbott soils erode easily when in cultivation, and generally limestone outcrops and surface fragments of cherty parent material occur where erosion has been severe.

A profile of Talbott silt loam, gently sloping phase, from an area that was in permanent pasture follows:

A_p 0 to 8 inches, brown (10YR 4/3 to 5/3) silt loam; moderate medium crumb structure; friable; medium to strongly acid; layer ranges from 6 to 10 inches in thickness.

B_1 8 to 14 inches, strong-brown (7.5YR 5/8) to reddish-yellow (7.5YR 6/8) heavy silt loam to silty clay loam; moderate medium subangular blocky structure; friable; small, round, brown concretions are common; a few fine faint mottles of yellow and gray; strongly acid; layer ranges from 4 to 8 inches in thickness.

B_2 14 to 26 inches, yellowish-red (5YR 5/8) to reddish-yellow (5YR 6/8) silty clay; moderate medium blocky structure; firm; splotched with yellow and gray; a few fragments of angular chert and limestone; plastic when wet; strongly acid; layer ranges from 10 to 14 inches in thickness.

C 26 to 30 inches +, mottled red, yellow, and gray clay; massive structure; a few fragments of chert and limestone; very plastic; medium acid; grades to limestone bedrock at depths of 2½ to 5 feet.

Hermitage Series

The Hermitage soils occupy foot slopes and have developed from old colluvial or old local alluvial materials that have come from Hagerstown and Talbott soils. Hermitage soils are fertile, well drained, and sloping to gently sloping. They are closely associated with and lie slightly above the Emory soils along the drainageways.

Profile of Hermitage soil in cultivation on a gentle slope:

A_p 0 to 12 inches, dark-brown (7.5YR 4/4) to brown (7.5YR 5/4) silt loam; weak medium crumb structure; friable; slightly acid to medium acid; layer ranges from 10 to 14 inches in thickness.

B_2 12 to 24 inches, strong-brown (7.5 YR 5/8) to yellowish-red (5YR 4/8 to 5/8) silt loam to light silty clay loam; moderate medium subangular blocky structure; friable; many fine, round, brown concretions; occasional small fragments of cherty limestone in lower part; medium to strongly acid; layer ranges from 10 to 14 inches in thickness.

C 24 to 30 inches +, yellowish-red (5YR 4/6) silty clay loam to silty clay; variegated with light gray and yellow; a few small fragments of chert.

High-grade limestone is at depths of 2½ to 5 feet.

Armour Series

The Armour soils have developed at the base of slopes and along streams. The parent material is old colluvial and alluvial accumulations that originated from weathered high-grade phosphatic limestone. The Armour soils are deep, well drained, and fertile. They are closely associated with the Maury, Mimosa, and Braxton soils of uplands and with the Etowah and Captina soils of the terraces. Where the Armour soils contain fragments of chert, they are associated with cherty soils of uplands.

Profile of Armour silt loam in a cultivated field:

A_1-A_{3p} 0 to 14 inches, dark reddish-brown (5YR 3/4) to reddish-brown (5YR 4/4) silt loam; moderate medium crumb structure; friable; slightly acid.

B_1 14 to 24 inches, strong-brown (7.5YR 5/6) to brown (7.5YR 5/4) silt loam to light silty clay loam; moderate medium subangular blocky structure; friable; a few very small, black concretions; medium acid; layer ranges from 8 to 12 inches in thickness.

B_2 24 to 36 inches +, strong-brown (7.5YR 5/6) to yellowish-red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; numerous round, black concretions; small angular fragments of chert in lower part; mottles of rust brown and light yellow in places; medium to slightly acid; texture becomes heavier with depth.

Phosphatic limestone is at depths of 3 to 5 feet.

Where the parent material of the Armour soils is principally old stream alluvium, the C horizon usually contains strata of sand, silt, clay, and gravel.

Etowah Series

The well-drained Etowah soils occupy fairly high terraces along the Duck River and its larger tributaries. They have formed from old stream alluvium that washed from uplands underlain by high-grade limestone. Etowah soils occur on gently sloping to moderately steep areas in association with the Armour, terrace phase, and with the Captina soils of the lower terraces. In many characteristics, the Etowah soils resemble the more nearly mature soils of the Maury series.

A profile of Etowah silt loam, gently sloping phosphatic phase, in cultivation follows:

A_p 0 to 10 inches, brown (7.5YR 5/4) silt loam; weak medium crumb to fine subangular blocky structure; friable; medium acid; layer ranges from 8 to 12 inches in thickness.

B_1 10 to 20 inches, yellowish-red (5YR 5/8) silty clay loam; moderate medium subangular to angular blocky structure; friable; a few fine, round, brown concretions; strongly acid; layer ranges from 8 to 12 inches in thickness.

B_2 20 to 36 inches, red (2.5YR 5/8) to light-red (2.5YR 6/8) silty clay loam; moderate medium subangular to angular blocky structure; friable to firm; many small, round, black concretions; fractures coated with yellow silt; few rounded water-worn pebbles; strongly acid; layer ranges from 14 to 20 inches in thickness.

C 36 inches +, variegated red and yellow silty clay loam to clay; stratified with beds of water-worn gravel; strongly acid.

Limestone is at depths of 3 to 20 feet in most places.

Yellow members

The yellow members of the Red-Yellow Podzolic great soil group have thin organic and organic-mineral layers over a grayish-yellow leached layer that rests on a yellowish horizon (*10*). In Maury County the yellow members occupy gently sloping to steep relief, and they have developed under forest vegetation consisting mainly of deciduous trees. The Hampshire, Hicks, Mimosa, Mountview, and Pace series are the yellow members of the Red-Yellow Podzolic great soil group.

The causes for pronounced color differences between the yellow and red members of the Red-Yellow Podzolic great soil group are not entirely known. It appears that the parent materials of yellow members were low in bases or less well drained internally than

those of the red members. In addition, the iron in the B_1 horizon may have been less or it was more hydrated.

Differences in the soils of the yellow members are due mainly to differences in parent material. The parent materials were residual or transported and consisted of loesslike silt over cherty limestone, phosphatic argillaceous limestone, and interbedded sandy limestone and shale.

Hampshire Series

The Hampshire soils are moderately deep to deep. They have heavy, firm B horizons. They have developed from materials that weathered from interbedded limestone and shale, principally the Hermitage formation. These soils are generally strongly acid, low in fertility, and difficult to work. They are closely associated with the Inman soils that occupy steeper slopes.

A profile of Hampshire silt loam in a gently sloping field used for crops and pasture follows:

A_p 0 to 10 inches, light yellowish-brown (10YR 6/4) to yellowish-brown (10YR 5/4) silt loam; weak medium crumb to fine granular structure; friable; medium to strongly acid.

B_2 10 to 20 inches, strong-brown (7.5YR 5/8) to yellowish-brown (10YR 5/8) silty clay loam to silty clay; moderate medium to coarse angular blocky structure; firm; a few fine, brown concretions and a few distinct mottles of yellow and gray; strongly acid; layer ranges from 8 to 12 inches in thickness.

B_3 20 to 30 inches, yellowish-brown (10YR 5/8), heavy silty clay loam to silty clay; moderate to strong medium angular blocky structure; firm; round, brown concretions and medium, distinct mottles of yellow and gray are common; some weathered fragments of sandy limestone and shale parent material; very strongly acid; layer ranges from 8 to 16 inches in thickness.

C 30 inches +, mottled yellow and gray clay to silty clay loam; contains lenses of weathered sandy limestone and shale leached of carbonates.

Limestone bedrock is at depths of 3 to 5 feet.

Hicks Series

In the Hicks series are light-colored, leached soils of uplands. They have developed from materials that weathered from interbedded sandy limestone and shale, chiefly of the Hermitage formation. Hicks soils occupy sloping to gently sloping relief in close association with the Hampshire and Inman soils. The Hicks soils are more friable and have less compact B horizons than the Hampshire soils. In some areas the Hicks soils have flat sandy limestone rocks, called flags, scattered over the surface.

Profile of Hicks silt loam, gently sloping phase, in an area that was cleared and cropped for many years:

A_p 0 to 8 inches, light yellowish-brown (10YR 6/4) silt loam; weak medium crumb structure; very friable; few small fragments of weathered sandy limestone; strongly acid; layer ranges from 6 to 10 inches in thickness.

B_1 8 to 22 inches, reddish-yellow (7.5YR 6/6) to brownish-yellow (10YR 6/6) silty clay loam; weak medium subangular blocky structure; friable; a few small, round, black concretions and medium, distinct streaks of yellow silt; weathered fragments of limestone; very strongly acid; layer ranges from 10 to 14 inches in thickness.

B_2 22 to 36 inches, strong-brown (7.5YR 5/6) to reddish-yellow (7.5YR 6/6) silty clay loam to light silty clay; moderate medium subangular blocky to blocky structure; friable to firm; a few round, black concretions 5 to 8 millimeters in diameter; fragments of parent material; a few mottles of yellow and gray; very strongly acid.

C 36 inches +, weathered and highly leached lenses of sandy limestone, shale fragments, and mottled clay.

Phosphatic limestone at depths of 3 to 5 feet.

Mimosa Series

The Mimosa series consists of well drained to moderately well drained soils of uplands that have a heavy B horizon. Mimosa soils have developed from high-grade clayey phosphatic limestone, chiefly of the Catheys and Cannon formations. The soils occupy gently sloping to moderately steep relief, and they erode fairly easily. They are closely associated with the Dellrose and Maury soils. Where Mimosa soils occur with Dellrose soils, the surface layer contains chert.

A profile of Mimosa silt loam in a cultivated field follows:

A_p 0 to 6 inches, brown (7.5YR 5/4) to dark yellowish-brown (10YR 4/4) silt loam; weak medium crumb to granular structure; friable; medium acid.

A_3 6 to 10 inches, brown (7.5YR 5/4) to strong-brown (7.5YR 5/6) silt loam; weak to moderate medium crumb to granular structure; friable; a few very small, round, brown concretions; medium to strongly acid; layer ranges from 3 to 6 inches in thickness.

B_2 10 to 26 inches, strong-brown (7.5YR 5/8) to reddish-yellow (7.5YR 6/8) silty clay loam to silty clay; moderate medium subangular blocky structure; firm; numerous round, black concretions; a few fine, distinct mottles of yellow and rust brown; strongly acid; layer ranges from 14 to 20 inches in thickness.

B_3 26 to 36 inches +, reddish-yellow (7.5YR 6/6) to brownish-yellow (10YR 6/6) silty clay to clay; moderate medium to coarse blocky structure; firm; plastic when wet; numerous round, black concretions; many medium, distinct mottles of yellow, gray, and rust brown; texture is finer with increase in depth.

Argillaceous limestone bedrock is at depths of 3 to 5 feet.

Mountview Series

Soils of the Mountview series are well drained and light colored. They have developed in loesslike silt lying over the residuum of weathered cherty limestone. They occupy gently sloping to sloping ridgetops in association with the Dickson and Bodine soils. The Dickson soils are generally on more level relief, and they have a fragipan. The shallower Bodine soils occupy steeper slopes. The Mountview soils are acid and low in most bases, but they are very responsive to fertilization.

A profile of Mountview silt loam, gently sloping phase, in a small woodland area in the northwestern part of the county has the following characteristics:

A_1 0 to 2 inches, grayish-brown (10YR 5/2) to light brownish-gray (10YR 6/2) silt loam; weak medium crumb structure; very friable; medium to strongly acid; layer ranges from 1 to 3 inches in thickness.

A_3 2 to 10 inches, brownish-yellow (10YR 6/6) to reddish-yellow (7.5YR 6/6) silt loam; weak medium crumb structure; very friable; medium to strongly acid; layer ranges from 6 to 10 inches in thickness.

B_1 10 to 24 inches, reddish-yellow (7.5YR 6/8 to 5YR 6/8) silt loam to silty clay loam; moderate medium subangular blocky structure; friable; a few small, brown concretions; a few small fragments of chert; mottles of gray in lower part; very strongly acid; layer ranges from 8 to 14 inches in thickness.

B_2 24 to 30 inches, reddish-yellow (7.5YR 6/8) to yellowish-red (5YR 5/8) silty clay loam; moderate medium

subangular blocky structure; friable to firm; small, round, dark-brown concretions; a few mottles of yellow and gray; contains angular fragments of chert ½ to 1½ inches in diameter; very strongly acid; layer ranges from 4 to 8 inches in thickness.

D 30 to 36 inches +, red (2.5YR 5/8) to light-red (2.5YR 6/8) cherty silty clay loam to silty clay; moderate medium blocky structure; firm; has mottles of yellowish brown.

Beds of weathered cherty limestone material are at depths of 3 to 5 feet.

Pace Series

Soils of the Pace series occur at the foot of slopes. They have developed from old local alluvium or colluvium that washed from higher lying Mountview and Bodine soils. The Pace soils differ from the Mountview and Bodine soils chiefly in age and degree of profile development. The Pace soils are relatively young, compared with the Mountview soils, but the A, B, and C horizons have been developed. Pace soils occur as small areas in the extreme northwestern and southwestern parts of the county.

The Pace soils have a grayish-brown (10YR 5/2) friable silt loam surface horizon about 10 inches thick, and a brownish-yellow (10YR 6/6) friable silty clay loam subsoil that is mottled yellow and gray in lower part. The soils are strongly acid and contain many fragments of chert. The degree of profile development varies from place to place. A few areas of azonal soils belonging to the Alluvial great soil group and developing from more recently deposited material were mapped with the Pace soils.

GRAY-BROWN PODZOLIC SOILS

The Gray-Brown Podzolic soils have a comparatively thin organic and organic-mineral horizon over a grayish-brown leached A horizon that rests upon an illuvial yellowish-brown, brown, brownish-yellow, or reddish-brown B horizon that becomes lighter colored with depth (*10*). The soils have been developed through podzolization, under a deciduous forest, and in a temperate moist climate.

The Gray-Brown Podzolic soils in Maury County are members of the Frankstown, Culleoka, and Dellrose series. These soils are well drained to excessively drained, and all have at least moderately well developed profiles, although they differ in degree of maturity. The relief ranges from gently sloping to steep, but profile differences probably can be correlated with differences among parent materials rather than with differences in relief.

Frankstown Series

Soils of the Frankstown series are well drained to excessively drained. They have developed from materials that weathered from cherty limestone and underlying phosphatic shale. In most places Frankstown soils are underlain by the lower part of the Fort Payne chert formation and associated shales. They occupy mainly ridgetops and upper slopes of ridges and knobs along the edge of the Highland Rim in close association with the Dellrose, Ashwood, and Mimosa soils. They contain a moderate amount of phosphorus and possibly potassium in many places. The content of chert is so high in places, especially on the steeper slopes, that Frankstown soils might be considered Lithosols. In most places, however, they have the profile characteristics of zonal soils.

Profile of Frankstown cherty silt loam from the top of a gently sloping high ridge in cultivation:

A_p 0 to 8 inches, brown (10YR 5/3) to dark yellowish-brown (10YR 4/4) silt loam; moderate medium crumb structure; friable; numerous small fragments of angular chert and shale; medium to strongly acid.

B_1 8 to 16 inches, strong-brown (7.5YR 5/6) silt loam to light silty clay loam; weak to moderate medium subangular blocky structure; friable to firm; a few small, round concretions of brown and black and angular fragments of chert; strongly acid; layer ranges from 8 to 10 inches in thickness.

B_2 16 to 30 inches +, strong-brown (7.5YR 5/6) to reddish-yellow (7.5YR 6/6) silty clay loam; moderate medium subangular to angular blocky structure; firm; small black concretions; few mottles of rust brown and gray; many fragments of chert and shale ½ to 3 inches in diameter; strongly acid; layer is 10 to 15 inches thick; grades to cherty limestone and shale residuum at depths of 1½ to 4 feet.

Culleoka Series

Soils of the Culleoka series have developed in materials weathered from interbedded phosphatic sandy limestone and shale. They occur on moderately steep to steep slopes where colluvial materials have accumulated. Generally these soils are underlain by the Hermitage formation. The Culleoka soils are more open and porous than the associated Maury, Hicks, and Inman soils. Flat, porous, and leached fragments of sandy limestone and shale in various sizes are on the surface and throughout the profile in many areas. In some places, particularly on the upper parts of slopes, the profiles of Culleoka soils developed partly from the weathered residuum of the underlying limestone.

Profile of the moderately steep phase of Culleoka loam:

A_1 0 to 8 inches, brown (10YR 5/3) to yellowish-brown (10YR 5/4) loam; weak medium crumb structure; very friable; few small weathered fragments of sandy limestone; strongly acid; layer ranges from 6 to 12 inches in thickness.

B_1 8 to 20 inches, brownish-yellow (10YR 6/6) to reddish-yellow (7.5YR 6/6) loam to clay loam; weak fine to medium subangular blocky structure; friable; contains weathered fragments of sandy limestone; very strongly acid; layer ranges from 10 to 20 inches in thickness.

C 20 inches +, strong-brown (7.5YR 5/6) clay loam; contains lenses of partly weathered fragments of sandy limestone and shale; firm when moist, compact and hard when dry; very strongly acid; grades to interbedded limestone and shale at depths of 2½ to 10 feet.

Dellrose Series

Soils of the Dellrose series are well drained and moderately well developed. They have developed mainly from old cherty colluvium that has been influenced in places by the underlying limestone and shale, mainly of the Leipers and Catheys formations. They generally occupy the strong slopes below the Bodine and Frankstown soils and adjacent to the closely associated Mimosa and Ashwood soils. The Dellrose soils are open and permeable and contain angular fragments of chert and phosphatic shale in large quantities. The soil varies considerably from place to place

in character and in thickness over residual parent material.

Profile of Dellrose cherty silt loam, sloping phase, in a pasture:

A_{1p} 0 to 10 inches, dark-brown (10YR 4/3) to dark yellowish-brown (10YR 4/4) silt loam; moderate medium crumb structure; very friable; contains angular fragments of chert and weathered phosphatic shale; medium acid; layer ranges from 8 to 10 inches in thickness.

A_2 10 to 24 inches, brown (7.5YR 5/4) to strong-brown (7.5YR 5/6) silt loam; weak moderate medium crumb structure; friable; a few small, black concretions; fragments of parent material as in above layer; strongly acid; layer ranges from 10 to 16 inches in thickness.

B_1 24 to 30 inches +, brown (7.5YR 4/4) to strong-brown (7.5YR 5/6) to yellowish-red (5YR 4/8) silty clay loam; moderate medium subangular blocky structure; friable; a few small, black concretions and few fine, distinct mottles of yellow and gray in lower part; many angular fragments of chert ½ to 3 inches in diameter; slightly plastic when wet, porous and hard when dry; strongly acid; grades to slightly mottled layers of cherty silty clay and chert.

Limestone is at depths of 2½ to 20 feet. In many places there is a B_2 horizon consisting of yellowish-red (5YR 5/6) silty clay loam.

Intrazonal soils

The intrazonal soils in Maury County are members of the Planosol and Rendzina great soil groups.

PLANOSOLS

Planosols have an eluviated surface horizon underlain by a B horizon more strongly illuviated, cemented, or compacted than those of the associated soils. They have developed on a nearly level upland under grass or forest vegetation in a humid or subhumid climate (*10*).

In Maury County, most of the Planosols have a characteristic fragipan at depths ranging from 2 to 2½ feet. Drainage varies from moderately good to somewhat poor. The lower subsoil horizons are more dense or compacted than in most of the zonal soils, but the degree of development varies.

The Planosols have developed under climatic conditions similar to those under which the zonal soils developed, but internally they are less well aerated. They generally occupy smooth relief on which geologic erosion is slow, and they usually have formed from parent materials high in silt underlain by materials that restrict internal drainage.

The Dickson, Pickaway, and Captina series are members of the Planosol great soil group. A profile description of the Dickson soil is given, as it is representative of the Planosol great soil group in this county.

Dickson Series

Soils of the Dickson series are moderately well drained and light colored, and they have a brittle pan layer in the lower subsoil. They have developed in a thin layer of loesslike silt overlying the residuum from a moderately low grade of cherty limestone. These soils occupy fairly smooth areas on uplands in close association with the Mountview and Bodine soils.

Profile of Dickson silt loam, gently sloping phase, along United States Highway No. 43 in the extreme southwestern part of the county:

A_1-A_{2p} 0 to 16 inches, light brownish-gray (10YR 6/2) to pale-brown (10YR 6/3) silt loam; weak fine crumb structure; very friable; a few fine, round, black concretions; strongly acid.

B_1 16 to 20 inches, yellowish-brown (10YR 5/8) to brownish-yellow (10YR 6/8) silt loam; weak medium to fine subangular blocky structure; friable; contains a few small, round, dark-brown concretions; very strongly acid; layer ranges from 3 to 8 inches in thickness.

B_2 20 to 28 inches, brownish-yellow (10YR 6/6) to yellowish-brown (10YR 5/6) light silty clay loam; moderate medium subangular blocky structure; friable to firm; contains a few small, dark-brown concretions; lower part is mottled light yellowish brown and gray; very strongly acid; layer ranges from 6 to 12 inches in thickness.

B_{3m} 28 to 36 inches, mottled yellow, rust-brown, and gray heavy silt loam; firm when moist, compact and brittle when dry, friable and loose when saturated; small angular fragments of chert in lower part; very strongly acid; layer ranges from 8 to 14 inches in thickness.

C 36 inches +, mottled yellow, gray, and red silty clay or clay with many angular fragments of chert ½ to 3 inches in diameter; underlain by chert beds.

Cherty limestone is at depths of 3½ to 6 feet.

Pickaway Series

Soils of the Pickaway series occupy smooth nearly level areas in the uplands of the inner Central Basin. They are moderately well drained to somewhat poorly drained and have a compact layer at depths of about 2 to 2½ feet. The Pickaway soils have a brown to light yellowish-brown friable silt loam surface layer about 8 inches thick. This overlies a subsoil layer about 16 inches thick that consists of brownish-yellow to reddish-yellow friable silty clay loam. Below the subsoil is a mottled, compact, brittle layer containing numerous black concretions and overlying mottled clay and bedrock. The entire profile is medium to strongly acid.

Captina Series

The Captina soils are similar to the Dickson and Pickaway soils in many profile characteristics, but they are darker and are phosphatic. They have formed from alluvial materials that washed from phosphatic limestone soils. They are moderately well drained and occupy nearly level stream terraces where external drainage is somewhat slow. The profile is medium to strongly acid and high in phosphorus.

The surface layer is a dark yellowish-brown friable silt loam. The subsoil layer is a yellowish-brown to reddish-yellow friable silty clay loam that contains numerous small, rounded, black concretions and is mottled yellow and gray in the lower part. Below this layer is a mottled rust-brown, yellow, and gray silt loam that is hard and brittle when dry; it contains many black concretions and pebbles. The parent material of mixed sand, silt, clay, and gravel is at depths of about 2½ to 4 feet.

RENDZINA SOILS

Rendzina soils usually have a dark-gray or black friable surface horizon underlain by light-gray or yellowish calcareous material. They have developed

under grass vegetation or mixed grass and forest, in humid and semiarid regions, from relatively soft, highly calcareous parent material (*10*).

Ashwood Series

The only Rendzina soils mapped in Maury County are those of the Ashwood series. They are shallow and moderately well drained to somewhat poorly drained, and they have a heavy B horizon. They have developed from rather high-grade to argillaceous phosphatic limestone, mainly of the Leipers and Catheys formations. The Ashwood soils occur as small areas on gently sloping to sloping relief in association with the Mimosa soils and with Rockland areas. Ashwood soils are affected by seepage waters from underlying limestone, especially during wet periods. Accumulations of organic matter on the surface soil appear to be relatively high; all horizons are slightly acid to neutral.

A profile of the Ashwood soil in a recently cleared pasture follows:

A_1 0 to 6 inches, very dark gray (5YR 3/1) to black (5YR 2/1) to dark reddish-brown (5YR 3/2) silt loam to light silty clay loam; weak fine granular structure; friable; slightly acid; layer ranges from 4 to 8 inches in thickness.

B_2 6 to 18 inches, brownish-yellow (10YR 6/6) to yellowish-brown (10YR 5/4 to 5/6) silty clay loam to silty clay; moderate medium to coarse angular blocky structure; firm; many small, black concretions and few medium, distinct mottles of yellow and gray; neutral reaction; layer ranges from 8 to 14 inches in thickness.

C 18 inches +, mottled yellow and gray massive silty clay to clay; numerous black concretions; angular fragments of limestone parent material; neutral reaction; grades to limestone at depths of 20 to 30 inches.

Azonal soils

The Azonal soils of the county are members of the Lithosol and Alluvial great soil groups.

LITHOSOLS

Lithosols have no clearly expressed soil morphology; they consist of a freshly or imperfectly weathered mass of rock fragments and are largely confined to steep sloping lands (*10*). They occupy slopes on which geologic erosion is relatively rapid. The soil-forming processes have not acted on the parent material long enough to have developed well-defined genetic soil properties. Lithosols are usually weakly developed, shallow, or very stony soils; commonly they have little or no definite profile.

In Maury County the Bodine, Inman, and Colbert series are members of the Lithosol great soil group. In addition, the miscellaneous land types—Rockland, Mimosa and Inman materials; Rockland, Talbott material; Rockland; and Gullied land are also classed as Lithosols. In most places, no true soil exists in these miscellaneous land types, and very little has formed because of relief and geologic erosion. Gullied land is a condition from which most of the true soil horizons have been lost as the result of man-induced erosion. The most extensive Lithosols in the county are the Bodine soils, and they are described as representative of the Lithosol group.

Bodine Series

The development of the Bodine soils has been retarded by the highly resistant parent material and steep relief. They are somewhat excessively drained and have developed from the residuum of cherty limestone. They occupy sloping to steep areas in association with the Mountview and Dellrose soils and are generally underlain by Fort Payne chert.

The Bodine soils vary from place to place, but a fairly representative profile in a forested area is as follows:

A_0 ¼ to 0 inch, partially decomposed forest litter.

A_1 0 to 2 inches, dark grayish-brown (10YR 4/2) cherty silt loam; very friable; angular chert ½ to 3 inches in diameter; strongly acid; layer ranges from 1 to 3 inches in thickness.

A_2 2 to 10 inches, light-gray (10YR 7/2) to very pale brown (10YR 7/3) to light yellowish-brown (10YR 6/4) cherty silt loam; weak fine crumb structure; friable; numerous fragments of angular chert; very strongly acid; layer ranges from 6 to 10 inches in thickness.

C 10 inches +, reddish-yellow (7.5YR 7/8) to yellow (10YR 7/8) silt loam to light silty clay loam; very cherty; few mottles of light yellowish brown, gray, and red; very strongly acid; underlain by stratified beds of chert.

Bedrock is at depths of 2 to 10 feet.

ALLUVIAL SOILS

Alluvial soils have developed from transported and relatively recently deposited material (alluvium) only weakly modified, if at all, by soil-forming processes (*10*).

They occur on first bottoms along streams and drainageways, in depressions, and on foot slopes. The parent material in many places is a combination of colluvium and local alluvium. Alluvial soils are on nearly level to gently sloping or depressional relief, and they are well drained to poorly drained. They characteristically lack genetically related horizons in the profile. The soil properties are closely related to the alluvial deposits from which they have developed.

In Maury County, soils of the Huntington, Lindside, Egam, Dunning, Emory, Greendale, Godwin, and Burgin series are members of the Alluvial great soil group.

Huntington, Lindside, Egam, and Dunning Series

The Huntington and Lindside soils have developed from alluvium strongly influenced by high-grade limestone material. They occupy level to gently sloping bottom lands along drainageways and in depressions. The Huntington soils are well drained, deep brown, and friable. The Lindside soils resemble the Huntington in the upper horizon, but below it they are strongly mottled because of imperfect drainage. The Egam soils occupy bottom lands and have developed from finer textured sediments deposited in slack waters. They are very dark grayish brown and moderately well drained, and they have compacted subsoil. The Dunning soils have developed from heavy-textured alluvium washed mainly from soils underlain by clayey limestone. The surface layer is very dark gray to black silty clay loam, and it is underlain by a highly mottled black, tough, plastic silty

clay. Dunning soils differ from the Egam soils in being darker and more finely textured.

Emory and Greendale Series

The Emory and Greendale soils occur along foot slopes and benches at the base of upland slopes. They have developed from young local alluvium and colluvium that washed from limestone soils on adjacent slopes. The Emory soils are well drained. They have a reddish-brown friable silt loam surface soil overlying a yellowish-red friable silty clay loam subsoil. The Greendale soils are well drained to moderately well drained, and they have developed from cherty limestone. They have a light yellowish-brown surface layer and strong-brown subsoil mottled in the lower part.

Godwin and Burgin Series

The Godwin and Burgin soils are dark colored, and they occur along drainageways and at the foot of slopes. They have developed from materials that washed from high-grade to clayey limestone. Both soils are slightly acid to neutral in reaction and contain appreciable quantities of organic matter in the surface horizons. The Godwin soils are moderately well drained and have a very dark gray friable silt loam surface soil over a black more finely textured subsoil that is mottled in the lower part. The Burgin soils are somewhat poorly to poorly drained and have a very dark grayish-brown silty clay loam surface soil. Below this is a highly mottled, black, firm silty clay subsoil.

Engineering Characteristics of Soils of Maury County

This section of the soil survey report was prepared by the Soil Conservation Service and reviewed by the Division of Physical Research, Bureau of Public Roads. The soil survey report contains information that can be used by engineers to—

1. Make soil and land use studies.
2. Make estimates of runoff and erosion characteristics.
3. Make reconnaissance surveys of soil and ground conditions for highway and airport location.
4. Locate sand and gravel.
5. Correlate pavement performance with soils.
6. Determine the suitability of soil units for cross-county movements of vehicles and construction equipment.
7. Supplement other sources of information for the making of engineering soil maps.

The mapping and the descriptive report are somewhat generalized, however, and should be used primarily in planning more detailed field investigations to determine the in-place condition of the soil at the proposed construction site.

Some of the engineering characteristics of the soils of Maury County are shown in tables 27, 28, 29, and 30. These tables give soil test data from selected soils, characteristics of soil significant to engineering, estimated physical properties of the soils, and soil characteristics affecting the construction of highways and farm ponds.

Some of the terms used by the agricultural soil scientists may be unfamiliar to the engineer, and some words—for example, soil, clay, silt, sand, aggregate, and granular—may have special meanings in soil science. These terms are defined as follows:

Soil: The natural medium for the growth of land plants on the surface of the earth; composed of organic and mineral materials.

Clay: A soil separate or size group of mineral particles less than 0.002 millimeter in diameter. Clay, as a textural class, consists of soil material containing 40 percent or more of clay, less than 45 percent of sand, and less than 40 percent of silt.

Silt: A soil separate having diameters ranging from 0.05 to 0.002 millimeter. As a textural class, silt consists of soil material that contains 80 percent or more of silt and less than 12 percent of clay.

Sand: A soil separate ranging in diameter from 2.0 to 0.05 millimeters. As a textural class, sand consists of soil material that contains 85 percent or more of sand and not more than 10 percent of clay.

Topsoil: Soil material used to topdress roadbanks, gardens, and lawns.

Aggregate: A cluster of primary soil particles held together by internal forces to form a clod or fragment.

Granular structure: Individual grains grouped into spherical aggregates with indistinct sides. Highly porous granules are commonly called crumbs.

To make the best use of the soil maps and the soil survey reports, the engineer should know the physical properties of the soil materials and the in-place condition of the soil. After testing the soil materials and observing the behavior of each of these soils when used in engineering structures and foundations, the engineer can develop design recommendations for each soil unit delineated on the map.

Soil Engineering Test Data

Soil samples from the principal soil type of each of the extensive soil series were tested in accordance with standard procedures (*2*) to help evaluate the soils for engineering purposes. Table 27 shows the results of the moisture-density and the plasticity tests and of the mechanical analyses. The table also gives the engineering classifications for each soil sample. These classifications are briefly described in the subsection Engineering Soil Classifications. The soil materials tested were obtained from depths less than 6 feet and are not generally representative of materials at greater depths.

In the moisture-density or compaction test, soil material is compacted into a mold several times, each time at a successively higher moisture content, with a constant compactive effort. The dry density (unit weight) of the soil material increases as the moisture content increases until the "optimum moisture content" is reached. After that, the dry density decreases with increase in moisture content. The highest dry density obtained in the compaction test is termed "maximum dry density." Moisture-density data are important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

The mechanical analyses were made by combined sieve and hydrometer methods and can be used to determine the relative proportions of the different sizes of particles in the soil sample. Clay content

(percentage of particles smaller than 0.002 millimeter) was obtained by the hydrometer method and should not be used in naming soil textural classes.

The liquid limit and plasticity index values indicate the effect of water on the consistence of the soil material. As the moisture content of a very dry clayey soil increases, the material changes from a solid to a semisolid or plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the material passes from a solid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Engineering Descriptions

General characteristics of Maury County soils significant to engineering are given in table 28. The data on high water table are based upon field observations. Depths to bedrock for the steeper and more eroded phases will tend to be at the lower end of the range given in the table.

Physical Properties of Soils

The estimated in-place physical properties of typical soil profiles are given in table 29. Only limited information is available for Gullied land and Rockland. The table gives estimates for engineering classifications, permeability, available moisture-supplying capacity, suitability as topsoil, and shrink-swell potential. The values in table 29 are based largely upon field observations and evaluations, most of which are described in other sections of this report, and partly on the test data in table 27.

Soil Characteristics That Affect Engineering

The characteristics of each soil series or land type that may affect the construction of highways and farm ponds are shown in table 30. These characteristics are not generally apparent unless an engineer has access to the results of a field investigation.

Features affecting engineering

Highway locations in areas that are shown on the soil map as sloping, moderately steep, or steep will be influenced by the type of bedrock and its proximity to the soil surface. The difficulty of rock excavation, the possibility of slides in dipping stratified layers, and the chance of seepage along or through the bedrock should be investigated. Another factor that is important in the location of highways is the presence of poor construction material within the soil profile. A highly plastic clay layer restricts internal drainage and is a poor foundation. Consequently, the clay layer should be removed before construction of the pavement. If this is not feasible, as in low, flat, or poorly drained areas, an embankment section should be used to keep the roadway well above this layer.

Poor drainage also affects vertical alignment of roads. Seasonally high water and occasional flooding require the construction of embankment sections to keep roadways above high water. Subsurface seepage is common in deposits of local alluvium at the base of slopes and may require the use of interceptor ditches or underdrains. Seepage in the back slopes of cuts may cause slumping or sliding of the overlying material.

Earthwork is difficult during prolonged wet periods in most of Maury County, but it is possible to excavate, haul, and compact the better drained, coarse soil materials. Silty and clayey materials, however, may absorb enough water in wet periods that they cannot be readily dried to optimum moisture for proper compaction.

The suitability of each soil series or land type as a source of subbase material is also given in table 30. As a general rule, the easily drained and very coarse grained materials are most desirable for subbases. They usually occur in soils developed in sand or gravel. Materials that are suitable for use in base courses are scarce in Maury County. Suitable deposits of gravel, chert, or sand and gravel have been found in areas of Bodine cherty silt loam, Huntington cherty silt loam, Frankstown cherty silt loam, Dellrose cherty silt loam, and areas of alluvial soils. Chert gravel may be used economically for secondary and county roads, but it is often not durable enough to use as base material for primary roads or in concrete structures. Crushed limestone is much more satisfactory and is available from several quarries in the county.

The engineering problems related to soil and water conservation are generally confined to the installation of drainage tile and the construction of drainage channels and farm ponds. No unusual problems are anticipated in connection with irrigation or upland conservation practices. Irrigation is generally done by the sprinkler system and is limited to small patches in tobacco and market vegetables. Upland conservation practices are usually limited to contour tillage and rotations of strip crops.

Soil characteristics that interfere with the construction of farm ponds are itemized in table 30. Problems encountered in establishing farm ponds include permeable substrata or bedrock and inadequate or insufficient material for embankments. In table 30, shallow depth to bedrock may mean that a limited amount of fill material is available or that there is a possible seepage plane between bedrock and the earth fill. Permeable substrata at shallow depths and caverns in limestone bedrock can cause leakage and loss of water from farm ponds.

Engineering Soil Classifications

The engineering classification of a soil material by the American Association of State Highway Officials (A.A.S.H.O.) or by the Unified system identifies the material with regard to gradation and plasticity characteristics. The classification allows the engineer to appraise soil material rapidly by associating it with more familiar soils having the same classification. The engineering characteristics of soil groups classi-

TABLE 27.—*Engineering test data*[1] *for soil samples*

Soil name and location	Parent material	Bureau of Public Roads report number	Depth	Horizon	Moisture-density		
					Maximum dry density	Optimum moisture	Percentage larger than 3 inches
			Inches		*Lb. per cu. ft.*	*Percent*	
Armour silt loam: Highway 99, 1.0 mile west of old University of Tennessee Agricultural Experiment Station.	Alluvium and colluvium from limestone.	88197	0-12	A_1	100	20	--------
		88198	12-60	B	109	18	--------
		88199	60+	C	95	27	--------
Dellrose cherty silt loam: Highway 99, 2.5 miles west of Cross Bridges	Alluvium and colluvium from cherty limestone.	88200	0-10	A_p	101	19	--------
		88201	10-36	B	109	18	--------
		88202	36-60	C	110	17	19
		88203	60+	D	97	23	--------
Egam silty clay loam: Sowell Mill Pike at Sowell Mill Bridge over Duck River.	Alluvium from limestone	88204	0-30	A	102	20	--------
		88205	30+	C	92	21	--------
Etowah silt loam, phosphatic: 0.75 mile south of Cross Bridges	Alluvium from limestone	88206	0-10	A_p	108	16	--------
		88207	10-36	B	115	16	--------
		88208	36+	C	103	20	--------
U. S. Highway 31, 0.25 mile north of bridge	Alluvium from limestone	88209	2-12	A_1	112	16	--------
		88210	12-60	B_2	114	16	--------
		88211	60+	C	95	24	--------
Frankstown cherty silt loam: 0.5 mile northwest of Mount Wesley Church	Cherty limestone, some phosphatic shale.	88212	2-10	A	101	20	--------
		88213	10-30	B	113	15	--------
		88214	30+	C	84	30	38
Hagerstown silt loam: 0.25 mile west of Rally Hill	Limestone	88217	0-8	A_p	112	14	--------
		88218	8-30	B	113	16	--------
		88219	30+	C	106	20	--------
Hicks silt loam: 0.75 mile northeast of hill, off Blue Springs Road.	Phosphatic sandy limestone or interbedded limestone and sandy shale.	88220	0-8	A	109	15	--------
		88221	8-24	B	107	19	--------
		88222	24+	C	106	20	--------
Huntington cherty silt loam, local alluvium phosphatic phase: 2.0 miles west of Darks Mill	Alluvium from phosphatic limestone.	88215	0-14	------	103	18	--------
		88216	14+	------	107	17	10
Huntington silt loam, phosphatic: Little Bigby Creek, old University of Tennessee Experiment Station.	Alluvium from phosphatic limestone.	88223	0-30	------	111	16	--------
		88224	30+	------	109	18	--------
Inman and Hampshire silty clay loams	Phosphatic sandy limestone or interbedded limestone and sandy shale.	88225	0-10	A_p	116	14	--------
		88226	10+	C	91	29	--------
Lindside silt loam, phosphatic: 1.25 miles west of Spring Hill	Alluvium from limestone	88227	0-24	------	108	17	--------
		88228	24+	------	106	19	--------
Maury silt loam: U. S. Highway 43, 1.0 mile southwest of Saint Johns Church.	Phosphatic limestone	88229	0-12	A	104	20	--------
		88230	12-36	B	104	22	--------
		88231	36+	C	106	22	--------
Mimosa silt loam: 1.5 miles east of Theta	Clayey phosphatic limestone	88232	0-8	A_1	105	19	--------
		88233	8-30	B	94	27	--------
		88234	30+	C	82	31	--------
Talbott silty clay loam: Junction of State Highways No. 50 and No. 50A.	Limestone	88235	0-6	A_p	108	16	--------
		88236	6-24	B	94	27	--------
		88237	24+	C	87	31	--------

[1] Tests performed by the Bureau of Public Roads according to standard procedures of the American Association of State Highway Officials (A.A.S.H.O.) (*2*).

[2] According to the American Association of State Highway Officials Designation T 88. Results by this procedure frequently may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the A.A.S.H.O. procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 mm. in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method

taken from 14 soils of Maury County, Tenn.

Mechanical analyses [2]															Liquid limit	Plasticity index	Classification	
Percentage passing sieve [3]											Percentage smaller than— [3]							
3-in.	2-in.	1½-in.	1-in.	¾-in.	⅜-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 60 (0.25 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.			A.A.S.H.O. [4]	Unified [5]
----	----	----	----	----	----	----	100	98	97	95	93	80	32	23	37	11	A-6 (8)	ML-CL
----	----	----	----	----	----	----	100	97	96	95	94	80	42	31	38	17	A-6 (11)	CL
----	100	----	----	----	80	80	78	74	72	62	61	54	42	35	53	26	A-7-6 (14)	MH-CH
100	----	----	85	80	74	71	66	56	55	53	53	42	17	11	32	7	A-4 (4)	ML-CL
100	----	----	72	70	65	62	58	52	51	50	49	45	22	16	32	13	A-6(4)	GC
81	----	----	----	37	34	31	27	22	22	21	21	19	9	7	32	13	A-2-4 (0)	GC
----	----	----	----	----	----	100	99	98	98	97	97	93	79	62	65	39	A-7-6 (20)	CH
----	----	----	----	----	----	----	----	100	99	93	90	76	38	30	42	20	A-7-6 (12)	CL
----	----	----	----	----	----	----	----	100	100	97	95	82	45	36	50	26	A-7-6 (16)	CL
----	----	----	100	99	99	99	99	96	94	91	88	71	25	17	27	6	A-4 (8)	ML-CL
----	----	----	----	----	----	100	99	96	95	93	91	78	34	25	30	11	A-6 (8)	CL
----	----	----	100	96	75	57	54	47	45	43	42	38	23	19	43	19	A-7-6 (4)	GC
----	----	----	----	----	----	----	100	97	95	86	83	72	24	16	24	6	A-4 (8)	ML-CL
----	----	----	----	----	----	----	100	96	94	85	84	74	35	26	34	13	A-6 (9)	CL
----	100	----	----	----	39	36	33	28	27	25	25	24	20	18	58	22	A-2-7 (1)	GM
100	----	----	84	----	74	72	70	64	63	60	58	50	21	13	34	9	A-4 (5)	ML-CL
100	----	----	----	----	70	70	69	66	65	63	63	56	26	17	27	9	A-4 (6)	CL
62	----	----	37	35	34	33	33	28	27	25	25	24	19	17	63	25	A-7-5 (10)	MH
----	----	----	----	----	----	----	100	98	97	82	78	59	20	15	24	5	A-4 (8)	ML-CL
----	----	----	----	----	----	----	100	97	96	86	84	76	35	27	35	15	A-6 (10)	CL
----	----	----	----	----	----	----	100	98	97	86	84	75	50	42	45	22	A-7-6 (14)	CL
100	----	----	----	----	----	95	94	93	92	73	64	32	19	13	25	5	A-4 (8)	ML-CL
----	----	----	100	----	90	----	----	----	89	73	66	46	32	27	36	13	A-6 (9)	ML-CL
100	----	----	----	----	----	----	----	----	50	43	38	23	17	14	38	15	A-6 (3)	GC
----	100	----	----	85	79	77	76	70	68	63	58	49	18	12	29	7	A-4 (6)	ML-CL
90	----	----	----	68	56	50	46	33	30	27	26	21	10	7	30	7	A-2-4 (0)	GM
----	----	----	----	----	----	----	100	98	93	77	70	47	22	17	30	11	A-6 (8)	CL
----	----	----	100	98	97	94	85	32	23	18	18	16	10	9	32	9	A-2-4 (0)	SC
----	----	----	----	----	100	99	98	95	94	70	66	50	24	19	24	7	A-4 (7)	ML-CL
100	----	----	----	----	----	----	50	50	50	46	43	35	30	27	54	20	A-7-5 (6)	GM
----	----	----	----	----	----	100	98	83	80	75	74	61	29	23	39	14	A-6 (10)	ML-CL
----	----	----	----	----	----	100	99	93	90	85	82	71	38	30	42	19	A-7-6 (12)	CL
----	----	----	----	----	----	----	100	97	95	89	86	72	34	27	36	12	A-6 (9)	ML-CL
100	----	----	----	----	----	----	95	88	85	74	73	67	39	33	42	16	A-7-6 (11)	ML-CL
----	100	----	----	----	75	74	73	66	60	44	43	38	26	22	39	15	A-6 (3)	SM-SC
----	----	----	----	----	----	----	100	96	94	91	87	71	34	24	35	12	A-6 (9)	ML-CL
100	----	----	----	96	----	----	95	90	89	87	86	80	60	53	58	24	A-7-5 (17)	MH
----	----	----	----	----	----	----	100	95	93	91	90	86	76	70	72	29	A-7-5 (20)	MH
----	----	----	----	----	----	----	100	96	95	91	85	66	28	19	30	9	A-4 (8)	ML-CL
----	----	----	100	----	----	----	95	92	91	88	86	79	60	50	65	31	A-7-5 (20)	MH-CH
----	----	----	----	----	----	----	----	----	100	99	98	94	83	77	82	43	A-7-5 (20)	MH

and the material coarser than 2 mm. in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soils.

[3] Based on total material. Laboratory test data corrected for amount discarded in field sampling.

[4] According to the Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, A.A.S.H.O. Designation M 145-49.

[5] According to the Unified Soil Classification System (*11*).

TABLE 28.—*Characteristics of Maury County soils significant to engineering*

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Aa	Armour cherty silt loam, eroded gently sloping phase.	0–5	Good	10+	6–20+	These soils are on second bottoms and in colluvial positions.[2] They have developed in old alluvium washed from limestone material. They are underlain at about 30 inches by cherty soil material [predominantly CL, GC, or GM (A-2, A-6, or A-7)].
Ab	Armour cherty silt loam, eroded sloping phase.	5–12	Good	10+	6–20+	
Ac	Armour cherty silty clay loam, severely eroded sloping phase.	5–12	Good	10+	6–20+	
Ad	Armour gravelly silty clay loam, severely eroded sloping terrace phase.	5–12	Good	10+	6–20+	
Ae	Armour silt loam, eroded gently sloping phase.	0–5	Good	10+	3–10	These soils are on second bottoms and in colluvial positions. They have developed in old alluvium washed from limestone materials and are underlain at about 36 inches by sands, silts, and clays in various proportions [predominantly MH, CL, or CH (A-6 or A-7)].
Ag	Armour silt loam, eroded sloping phase.	5–12	Good	10+	3–10	
Af	Armour silt loam, eroded gently sloping terrace phase.	0–5	Good	10+	3–10	
Ah	Armour silty clay loam, severely eroded sloping phase.	5–12	Good	10+	3–10	
Ak	Ashwood rocky silt loam, gently sloping phase.	0–5	Moderately good to somewhat poor.	10+	0–3	These are shallow upland soils developed in clayey limestone residuum. They are underlain at about 24 inches by intermittent layers of clayey soil material [predominantly CH (A-7)].
Am	Ashwood rocky silty clay, severely eroded sloping phase.	5–12	Moderately good to somewhat poor.	10+	0–3	
Al	Ashwood rocky silty clay loam, eroded sloping phase.	5–12	Moderately good to somewhat poor.	10+	0–3	
Ba	Bodine cherty silt loam, sloping phase.	4–12	Good to excessive	30+	10–30	These cherty upland soils have developed in cherty limestone residuum. They are usually underlain at about 20 inches by a thick layer of cherty limestone residuum [predominantly GC or GM (A-2 or A-4)].
Bb	Bodine cherty silt loam, eroded sloping phase.	4–12	Good to excessive	30+	10–30	
Bc	Bodine cherty silt loam, moderately steep phase.	12–25	Good to excessive	30+	10–30	
Bd	Bodine cherty silt loam, eroded moderately steep phase.	12–25	Good to excessive	30+	10–30	
Be	Bodine cherty silt loam, steep phase.	25–60	Good to excessive	30+	10–30	
Bh	Braxton silt loam, eroded gently sloping phase.	0–5	Good to moderately good	10+	4–6	These upland soils have developed in limestone residuum. They are underlain at about 30 inches by clayey soil material with various amounts of chert [predominantly ML, Cl, or GH (A-6 or A-7)].
Bf	Braxton cherty silty clay, severely eroded moderately steep phase.	12–25	Good to moderately good	10+	4–6	
Bg	Braxton cherty silty clay loam, severely eroded sloping phase.	5–12	Good to moderately good	10+	4–6	
Bk	Braxton silty clay loam, eroded sloping phase.	5–12	Good to moderately good	10+	4–6	
Bl	Braxton silty clay loam, eroded moderately steep phase.	12–25	Good to moderately good	10+	4–6	
Bm	Burgin silt loam, phosphatic phase.	0–3	Somewhat poor to poor	0–1	2–5	These soils occupy colluvial positions and have developed in alluvium from limestone materials. They are underlain at about 24 inches by thin layers of clayey soil material [predominantly CH (A-7)].
Bn	Burgin silty clay loam, gently sloping phase.	0–6	Somewhat poor to poor	0–1	2–3	
Bo	Burgin silty clay loam, gently sloping phosphatic phase.	0–6	Somewhat poor to poor	0–1	2–5	

See footnotes at end of table.

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Ca	Captina silt loam, eroded gently sloping phosphatic phase.	0–5	Somewhat poor to moderately good.	[3]2–3	4–10+	This soil occupies second bottoms. It has developed in an old alluvium washed from limestone materials and is underlain at about 30 inches by sand, silt, and clay in various proportions [predominantly CL, CH, GC, or GM (A-2, A-6, or A-7)].
Cc	Colbert silty clay loam, eroded gently sloping phosphatic phase.	0–5	Somewhat poor to moderately good.	10+	1–5	These upland soils have developed in clayey limestone residuum. They are underlain at about 20 inches by thin layers of clayey soil material [predominantly CH (A-7)].
Cb	Colbert silty clay, severely eroded sloping phosphatic phase.	5–12	Somewhat poor to moderately good.	10+	1–5	
Ck	Culleoka loam, eroded moderately steep phase.	12–25	Good to excessive	20+	6–10	These soils of old colluvial lands have developed in sandy limestone residuum. They are underlain at about 30 inches by mixed sand, silt, clay, and sandy limestone fragments [predominantly Cl, SC, or SM (A-2, A-6, or A-7)].
Cd	Culleoka clay loam, severely eroded moderately steep phase.	12–25	Good to excessive	20+	6–10	
Ce	Culleoka flaggy clay loam, severely eroded moderately steep phase.	12–25	Good to excessive	20+	4–10	
Cf	Culleoka flaggy clay loam, severely eroded steep phase.	25–60	Good to excessive	20+	4–10	
Cg	Culleoka flaggy loam, eroded moderately steep phase.	12–25	Good to excessive	20+	4–10	
Ch	Culleoka flaggy loam, eroded steep phase.	25–60	Good to excessive	20+	4–10	
Da	Dellrose cherty silt loam, eroded sloping phase.	4–12	Good to excessive	20+	5–30	These soils are in old colluvial positions. They have formed from old cherty material that washed from limestone materials. They are underlain at about 30 inches by cherty soil material of variable thickness [predominantly GC (A-2), which overlies clayey soil material that is predominantly CH (A-7)].
Db	Dellrose cherty silt loam, eroded moderately steep phase.	12–25	Good to excessive	20+	5–30	
Dc	Dellrose cherty silt loam, severely eroded moderately steep phase.	12–25	Good to excessive	20+	5–30	
Dd	Dellrose cherty silt loam, eroded steep phase.	25–60	Good to excessive	20+	5–30	
De	Dickson silt loam, eroded gently sloping phase.	0–5	Moderately good	[3]2–3	10–20	This upland soil has developed in a thin silt mantle underlain at about 36 inches by cherty limestone residuum [predominantly GC or GM (A-2)].
Df	Donerail silt loam, gently sloping phase.	0–5	Somewhat poor to moderately good.	[3]2–3	6–10	This upland soil has developed in weathered phosphatic limestone materials and is underlain at about 30 inches by clayey limestone residuum [predominantly MH (A-7)].

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Dh	Dunning and Lindside silty clay loams.	0–3	Somewhat poor to moderately good.		2–3	These soils are on the flood plains. They are developing in young alluvium washed from limestone materials and are underlain at about 20 inches by sediments [predominantly CL or CH (A-6 or A-7)].
Dg	Dunning silty clay loam, phosphatic phase.	0–3	Somewhat poor to poor		6–20	
Ea	Egam silty clay loam, phosphatic phase.	0–3	Moderately good to good	0–3	6–20+	This soil is on the flood plains. It is developing in young alluvium washed from limestone materials and is underlain at about 20 inches by sediments [CL or CH (A-6 or A-7)].
Eb	Emory silt loam, gently sloping phase.	0–6	Good	0–5	3–6	This young colluvial soil has developed in silty material washed from limestone materials. It is underlain at about 24 inches by limestone residuum [predominantly CH or MH (A-7)].
Ef	Etowah silt loam, eroded gently sloping phase.	0–5	Good	10+	5–20	These soils occur on high second bottoms. They have developed in old general alluvium derived chiefly from limestone materials. They are underlain at about 36 inches by a rather thick layer of mixed gravel, sand, silt, and clay in various proportions [predominantly CL, CH, GC, or GM (A-2, A-6, or A-7)].
Eg	Etowah silt loam, eroded gently sloping phosphatic phase.	0–5	Good	10+	5–20	
Eh	Etowah silt loam, eroded sloping phosphatic phase.	5–12	Good	10+	5–20	
Ec	Etowah gravelly silty clay loam, severely eroded sloping phase.	5–12	Good	20+	3–10	
Ed	Etowah gravelly silty clay loam, severely eroded sloping phosphatic phase.	5–12	Good	20+	3–10	
Ee	Etowah gravelly silty clay loam, severely eroded moderately steep phosphatic phase.	12–25	Good	20+	3–10	
Fa	Frankstown cherty silt loam, eroded sloping phase.	4–12	Good to excessive	20+	10–30+	These cherty upland soils occupy narrow ridgetops. They have developed in cherty limestone and shale residuum. The soils are underlain at about 30 inches by thick beds of cherty materials [predominantly GC or GM (A-2)].
Fb	Frankstown cherty silt loam, moderately steep phase.	12–25	Good to excessive	20+	10–30+	
Fc	Frankstown cherty silt loam, eroded moderately steep phase.	12–25	Good to excessive	20+	10–30+	
Fd	Frankstown coarse cherty silt loam, sloping phase.	4–12	Good to excessive	30+	5–20+	
Fe	Frankstown coarse cherty silt loam, eroded sloping phase.	4–12	Good to excessive	30+	5–20+	
Ff	Frankstown coarse cherty silt loam, moderately steep phase.	12–25	Good to excessive	30+	5–20+	
Fg	Frankstown coarse cherty silt loam, eroded moderately steep phase.	12–25	Good to excessive	30+	5–20+	
Fh	Frankstown coarse cherty silt loam, steep phase.	25–60	Good to excessive	30+	5–20+	

See footnotes at end of table.

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Ga	Godwin silt loam	0–6	Good to moderately good	3–5	3–6	This soil is found in a colluvial position. It has developed from young local deposits washed from limestone materials. It is underlain at about 30 inches by sediments [predominantly MH, CL, or CH (A-6 or A-7)].
Gb	Greendale silt loam	0–6	Good to moderately good	3–5	10–20+	This colluvial soil has developed in young accumulations washed from soils derived chiefly from limestone materials. It is underlain at about 24 inches by limestone residuum [predominantly GC or GM (A-2)].
Gc	Gullied land	5–12	Good to excessive	30+	2–20	These land areas occur chiefly in upland positions. The surface is dissected by a network of gullies that cannot be crossed with farm machinery. The substrata are composed of various proportions of gravel, sand, silt, and clay [predominantly CL, CH, or MH (A-6 or A-7)].
Gd	Gullied land, phosphatic	12–25	Good to excessive	30+	2–20	
Ha	Hagerstown silt loam, eroded gently sloping phase.	0–5	Good	10+	4–8	These upland soils have developed in limestone residuum and are underlain at about 30 inches by a layer of clayey limestone residuum [predominantly MH, CL, or CH (A-6 or A-7)].
Hb	Hagerstown silty clay loam, severely eroded sloping phase.	5–12	Good	10+	4–8	
Hc	Hagerstown rocky silty clay loam, eroded gently sloping phase.	0–5	Good	10+	0–5	
Hd	Hampshire silt loam, eroded gently sloping phase.	0–5	Good to moderately good	5+	10–20+	This upland soil has developed in limestone residuum and is underlain at about 30 inches by a layer of limestone or shale residuum [predominantly CH or MH (A-6 or A-7)].
He	Hermitage silt loam, eroded gently sloping phase.	0–5	Good	10+	3–5	These colluvial soils have developed in old alluvium washed from limestone materials and are underlain at about 24 inches by an accumulation of limestone residuum [predominantly ML, CL, or CH (A-6 or A-7)].
Hf	Hermitage silt loam, eroded sloping phase.	5–12	Good	10+	3–5	
Hh	Hicks silt loam, eroded gently sloping phase.	0–5	Good	10+	4–8	These upland soils have developed in sandy limestone residuum. The underlying residuum consists of variable amounts of sand, silt, and clay mixed with sandy limestone fragments [predominantly CL, SC, or SM (A-2, A-6, or A-7)].
Hk	Hicks silt loam, eroded sloping phase.	5–12	Good	10+	4–8	
Hg	Hicks flaggy silt loam, eroded sloping phase.	5–12	Good	20+	4–8	

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Hl	Huntington cherty silt loam, phosphatic phase.	0–3	Good	0–5	4–10	These cherty soils occur on first bottoms in flood plains. They are developing in young alluvium washed from limestone materials and are underlain at about 36 inches by cherty limestone residuum [predominantly GM or GP (A-1 or A-2)].
Hm	Huntington cherty silt loam, local alluvium phosphatic phase.	0–6	Good	0–5	4–10	
Ho	Huntington silt loam, phosphatic phase.	0–3	Good	0–5	10–20+	These soils occur on first bottoms in flood plains. They are developing in young alluvium washed from limestone materials and are underlain at about 36 inches by sediments [predominantly CL, ML, or SC (A-2, A-4, or A-6)].
Hr	Huntington silt loam, local alluvium phosphatic phase.	0–6	Good	0–5	10–20+	
Hn	Huntington silt loam, depressional phase.	0–3	Good	0–5	10–20+	
Hp	Huntington silt loam, depressional phosphatic phase.	0–3	Good	0–5	10–20+	
Ic	Inman and Hampshire silty clay loams, severely eroded sloping phases.	4–12	Moderately good to somewhat excessive.	10+	10–20	These upland soils have developed in shaly limestone residuum. The underlying shaly limestone residuum below about 12 inches is predominantly CH, MH, or SC (A-6 or A-7).
Ia	Inman shaly silty clay loam, severely eroded moderately steep phase.	12–25	Good to excessive	20+	10–20	These upland soils have developed in shaly or sandy limestone residuum. The underlying shaly limestone residuum below about 12 inches is predominantly CH, MH, or SC (A-6 or A-7).
Ib	Inman shaly silty clay loam, severely eroded steep phase.	25–60	Good to excessive	20+	10–20	
Lc	Lindside silt loam, phosphatic phase.	0–3	Moderately good to somewhat poor.	0–2	5–20	These soils occur on first bottoms in flood plains. They are developing in young alluvium washed from limestone materials and are underlain at about 30 inches by sediments [predominantly CL, ML or SC (A-2, A-4, or A-6)].
Lb	Lindside silt loam, local alluvium phase.	0–6	Moderately good to somewhat poor.	0–2	5–20	
Ld	Lindside silt loam, local alluvium, phosphatic phase.	0–6	Moderately good to somewhat poor.	0–2	5–20	
La	Lindside cherty silt loam, phosphatic phase.	0–3	Moderately good to somewhat poor.	0–3	4–10	These cherty soils occur on first bottoms in flood plains. They are developing in young alluvium washed from limestone materials. Below 30 inches they are underlain by sediments [predominantly GM or GP (A-1 or A-2)].
Ma	Made land			Variable	Variable	These are excavated and graded areas composed of soil material that varies widely.

See footnotes at end of table.

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Mb	Maury silt loam, eroded gently sloping phase.	0–5	Good	10+	5–10	These upland soils have developed in phosphatic limestone residuum. They are underlain at about 36 inches by weathered limestone materials [predominantly SM, SC, ML, or CL (A-2, A-6, or A-7)].
Mc	Maury silt loam, eroded gently sloping coarse phase.	0–5	Good	10+	5–10	
Md	Maury silt loam, eroded sloping coarse phase.	5–12	Good	10+	5–10	
Me	Maury silty clay loam, eroded sloping phase.	5–12	Good	10+	5–10	
Mf	Maury silty clay loam, severely eroded sloping coarse phase.	5–12	Good	10+	5–10	
Mm	Minosa silt loam, eroded gently sloping phase.	0–5	Moderately good to good	10+	3–8	These upland soils have developed in limestone residuum and are underlain at about 36 inches by clayey limestone materials [predominantly MH, CL, or CH (A-6 or A-7)].
Mn	Mimosa silty clay, severely eroded sloping phase.	5–12	Moderately good to good	10+	3–8	
Mo	Mimosa silty clay loam, eroded sloping phase.	5–12	Moderately good to good	10+	3–8	
Mg	Mimosa cherty silt loam, eroded sloping phase.	5–12	Moderately good to good	10+	4–8	
Mh	Mimosa cherty silt loam, eroded moderately steep phase.	12–25	Moderately good to good	10+	4–8	
Mk	Mimosa cherty silty clay loam, severely eroded sloping phase.	5–12	Moderately good to good	10+	4–8	
Ml	Mimosa cherty silty clay loam, severely eroded moderately steep phase.	12–25	Moderately good to good	10+	4–8	
Mr	Mine areas, reclaimed	5–25	Good to somewhat excessive	20+	0–20	These are graded areas that have been mined for phosphate. They are composed of widely varying residuum from limestone.
Mp	Mines, pits, and dumps	Variable	Variable	Variable	Variable	These are excavated areas resulting from borrow pits or phosphate mines.
Ms	Mountview silt loam, eroded gently sloping phase.	0–5	Good to excessive	20+	7–10	These upland soils have developed in a thin silt mantle underlain at about 30 inches by a cherty limestone residuum [predominantly GC or GM (A-2)].
Mt	Mountview silt loam, sloping shallow phase.	5–12	Good to excessive	20+	7–10	
Mu	Mountview silt loam, eroded sloping shallow phase.	5–12	Good to excessive	20+	7–10	
Mv	Mountview silty clay loam, severely eroded sloping shallow phase.	5–12	Good to excessive	20+	7–10	
Pa	Pace cherty silt loam, eroded sloping phase.	4–12	Good to moderately good	5–10	10–20	This colluvial soil developed in old accumulations washed from cherty limestone materials. It is underlain at about 20 inches by cherty limestone residuum [predominantly GC or GM (A-2)].
Pc	Pickaway silt loam, eroded gently sloping phase.	0–5	Moderately good to somewhat poor.	[3]2–3	6–8	These upland soils have developed in limestone residuum underlain at about 30 inches by clayey limestone residuum [predominantly MH, CL, or CH (A-6 or A-7)].
Pb	Pickaway silt loam, somewhat poorly drained variant.	0–3	Moderately good to somewhat poor.	0–2	5–7	

TABLE 28.—*Characteristics of Maury County soils significant to engineering*—Continued

Map unit symbol	Soil	Slopes	Natural drainage class	Depth to seasonally high water table	Depth to bedrock	Description[1] (Selected characteristics significant to engineering)
		Percent		*Feet*	*Feet*	
Ra	Riverwash	0–5	Variable	0–3	Variable	This land type occurs on flood plains. The material consists of young alluvium washed from limestone materials and underlain by alluvium [predominantly GM or GP (A-1)].
Rb	Rockland, sloping	20–30	Excessive	30+	0–1	Predominantly limestone outcrop and some loose limestone fragments.
Rc	Rockland, steep	30–60	Excessive	30+	0–1	
Rd	Rockland, Mimosa and Inman materials, sloping.	3–12	Moderately good to somewhat excessive.	20+	0–4	Soil material predominantly MH, CL, or CH (A-6 or A-7) with numerous limestone outcrops.
Re	Rockland, Mimosa and Inman materials, steep.	12–60	Moderately good to somewhat excessive.	20+	0–4	
Rf	Rockland, Talbott material, sloping.	2–12	Good to moderately good	20+	0–3	Soil material predominantly MH, CL, or CH (A-6 or A-7) with numerous limestone outcrops.
Sa	Settling basins		Very poor	0	Variable	Predominantly ML, CL, MH, or CH (A-4, A-6, or A-7).
Ta	Talbott silty clay loam, eroded gently sloping phase.	0–5	Good to moderately good	10+	2–6	These upland soils have developed in clayey limestone residuum underlain at about 26 inches by clayey limestone materials [predominantly MH, CL, or CH (A-6 or A-7)].
Tb	Talbott silty clay, severely eroded sloping phase.	5–12	Good to moderately good	10+	2–6	

[1] Engineering classifications are estimates and are for soil materials that occur below the subsoil.

[2] Colluvial position is where soil material has collected at the base of slopes due to local wash or soil creep.

[3] Perched water table.

fied by the A.A.S.H.O. and the Unified classification systems are shown in tables 31 and 32, respectively.

Most highway engineers classify soil materials according to the A.A.S.H.O. system shown in table 31. In this system, soil materials are classified in seven principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils having low strength when wet. Within each group, the relative engineering value of the soil material is indicated by a group index number. These range from 0 for the best materials to 20 for the poorest. The group index number is shown in parentheses, following the soil group symbol, in the next to last column of table 27.

Some engineers prefer the Unified soil classification system shown in table 32. This table contains descriptions of the material within each group and recommendations for the use of these materials. In this system, soil materials are identified as coarse-grained (8 classes), fine-grained (6 classes), or highly organic. The classification of the tested soils according to the Unified system is given in the last column of table 27.

Planning Engineering Soil Surveys

At many construction sites, major soil variations may occur within the depth of proposed excavation and several soil units may be encountered within a short distance. The soil maps and profile descriptions, as well as the engineering descriptions given in this section, should be used in planning detailed surveys of soils at construction sites. Using the information in the soil survey reports will enable the soil engineer to concentrate on the most suitable soil units. Then a minimum number of soil samples will be required for laboratory testing, and an adequate investigation can be made at a minimum cost.

TABLE 29.—*Estimated engineering classification and physical properties of soils*

Soil series or type, or land type	Typical depth of major horizons	Classification		Perme-ability	Available moisture-holding capacity [1]	Suitability as topsoil	Shrink-swell potential
		Unified	A.A.S.H.O.				
	Inches			*Inches per hour*	*Inches per inch*		
Armour cherty silt loam	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.10–0.15	Fair	Moderate
	10–20	MH, CL, or CH	A–4 or A–6	0.2–0.8	0.10–0.15	Poor	Moderate
	20–30	GC or GM	A–2 or A–6	0.2–0.8	0.05–0.10	Poor	High
Armour silt loam	0–12	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	12–24	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	24–36+	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
Ashwood	0–6	ML or CL	A–4 or A–6	0.2–0.8	0.05–0.15	Not suitable	High
	6–18	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.05–0.15	Not suitable	High
	18+	MH or CH	A–7	Less than 0.2	0.05–0.15	Not suitable	High
Bodine	0–10	ML or GM	A–4	0.8–2.5	0.05–0.10	Poor	Moderate
	10+	ML, CL, or GM	A–4	0.8–2.5	0.05–0.10	Poor	Moderate
Braxton	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–18	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	18–30	CL, CH, or MH	A–6 or A–7	0.2–0.8	0.10–0.15	Fair	High
Burgin	0–6	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	High
	6–18	ML or CL	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	18+	CL or CH	A–6 or A–7	Less than 0.2	0.10–0.15	Poor	High
Captina	0–8	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	8–24	CL	A–4 or A–6	0.2–0.8	0.15–0.20	Fair	High
	24–30+	CL	A–6	Less than 0.2	0.15–0.20	Poor	High
Colbert	0–8	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.10–0.15	Poor	High
	8–24	MH, CL, or CH	A–7	0.2–0.8	0.10–0.15	Poor	High
	24+	MH, CL, or CH	A–7	Less than 0.2	0.10–0.15	Not suitable	High
Culleoka loam	0–8	ML or CL	A–4 or A–6	0.8–2.5	0.15–0.20	Good	Low
	8–20	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Fair	Moderate
Culleoka flaggy loam	0–8	ML, CL, or SM	A–2, A–4, or A–6	0.8–2.5	0.10–0.15	Poor	Low
	8–20	SM, SC, or CL	A–2, A–4, or A–6	0.8–2.5	0.10–0.15	Not suitable	Low
	20–30	GC or SC	A–2, A–4, or A–6	0.2–2.5	0.05–0.10	Not suitable	Low
Dellrose	0–10	ML or CL	A–4	0.8–2.5	0.10–0.15	Good	Moderate
	10–24	GC or ML	A–4 or A–6	0.8–2.5	0.10–0.15	Fair	Moderate
	24–30+	GC or ML	A–4 or A–6	0.8–2.5	0.10–0.15	Fair	Moderate
Dickson	0–16	ML or CL	A–4	0.2–0.8	0.15–0.20	Good	Moderate
	16–28	CL	A–4 or A–6	0.2–0.8	0.15–0.20	Fair	High
	28–36	CL	A–6	Less than 0.2	0.15–0.20	Poor	High
Donerail	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–20	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	20–30	MH, CL, or CH	A–6 or A–7	Less than 0.2	0.15–0.20	Poor	High
Dunning	0–14	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	14–20	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High
Egam	0–5	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Good	Moderate
	5–20+	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
Emory	0–12	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	12–24+	ML or CL	A–6 or A–7	0.2–0.8	0.15–0.20	Good	Moderate
Etowah silt loam	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–20	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	20–36+	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
Etowah gravelly silty clay loam.	0–8	ML or CL	A–4 or A–6	0.2–0.8	0.10–0.15	Fair	Moderate
	8–18	MH, CL, or CH	A–4 or A–6	0.2–0.8	0.10–0.15	Poor	Moderate
	18–32	GC or GM	A–2 or A–6	0.2–0.8	0.10–0.15	Poor	Moderate

See footnotes at end of table.

TABLE 29.—*Estimated engineering classification and physical properties of soils*—Continued

Soil series or type, or land type	Typical depth of major horizons	Classification		Permeability	Available moisture-holding capacity [1]	Suitability as topsoil	Shrink-swell potential
		Unified	A.A.S.H.O.				
	Inches			*Inches per hour*	*Inches per inch*		
Frankstown cherty silt loam.	0–8	ML, CL, or GM	A–4	0.8–2.5	0.10–0.15	Fair	Moderate
	8–16	ML, CL, or GM	A–4 or A–6	0.8–2.5	0.10–0.15	Fair	Moderate
	16–30+	GM	A–2 or A–4	0.8–2.5	0.05–0.10	Poor	Moderate
Frankstown coarse cherty silt loam.	0–6	ML, CL, or GM	A–4	0.8–2.5	0.05–0.10	Not suitable	Moderate
	6–14	GM	A–2 or A–4	0.8–2.5	0.05–0.10	Not suitable	Low
	14–28	GM	A–2 or A–4	2.5–5.0	0.05–0.10	Not suitable	Low
Godwin	0–4	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	4–18	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	18–30+	ML, CL, or CH	A–4, A–6, or A–7	0.2–0.8	0.15–0.20	Fair	High
Greendale	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–14	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	14–24+	ML or CL	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	Moderate
Gullied land				Less than 0.2	0.10–0.15	Poor	
Hagerstown	0–10	ML or CL	A–4	0.2–0.8	0.15–0.20	Good	Moderate
	10–30	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	30–40+	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High
Hampshire	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–20	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	20–30	MH, CL, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High
Hermitage	0–12	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	12–24	MH, CL, or CH	A–6, or A–7	0.2–0.8	0.15–0.20	Fair	High
Hicks	0–8	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	8–22	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Fair	High
	22–36	MH, CL, GC, SC	A–2, A–4, or A–6	0.2–0.8	0.15–0.20	Poor	High
Huntington	0–20	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.25	Good	Moderate
	20–36+	ML, CL, or SC	A–4 or A–6	0.2–0.8	0.15–0.25	Good	Moderate
Inman	0–6	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	Moderate
	6–12	CL, MH, GM, GC [2]	A–2, A–4, A–6, or A–7.	0.2–0.8	0.15–0.20	Poor	High
Lindside	0–16	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	16–30+	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Good	Moderate
Made land							
Maury silt loam	0–14	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	14–26	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	26–36	CL, CH, or MH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
Maury silt loam, coarse phase.	0–12	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	12–26	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	26–36	CL, SM, or SC	A–4 or A–6	0.2–0.8	0.15–0.20	Poor	Moderate
Mimosa cherty silt loam	0–10	ML or CL	A–4	0.2–0.8	0.10–0.15	Good	Moderate
	10–25	GC or ML	A–4 or A–6	0.2–0.8	0.10–0.15	Fair to poor	High
	25–35	CL, CH, or MH	A–6 or A–7	Less than 0.2	0.10–0.15	Poor	High
Mimosa silt loam	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	High
	10–26	MH or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High
	26–30	MH or CH	A–6 or A–7	Less than 0.2	0.10–0.15	Poor	High
Mine areas, reclaimed				0.2–0.8	0.10–0.15	Fair to not suitable.	High
Mines, pits, and dumps							
Mountview	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–24	ML or CL	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	24–30+	CL, MH, or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High

TABLE 29.—*Estimated engineering classification and physical properties of soils*—Continued

Soil series or type, or land type	Typical depth of major horizons	Classification: Unified	Classification: A.A.S.H.O.	Permeability	Available moisture-holding capacity [1]	Suitability as topsoil	Shrink-swell potential
	Inches			*Inches per hour*	*Inches per inch*		
Pace	0–10	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	10–20	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Fair	High
Pickaway	0–8	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	Moderate
	8–14	ML or CL	A–6 or A–7	0.2–0.8	0.15–0.20	Fair	High
	14–30+	CL or CH	A–6 or A–7	Less than 0.2	0.15–0.20	Poor	High
Riverwash		SC, SM, GC, GM	A–2 or A–4	0.8–2.5	0.5–0.10	Fair to not suitable.	Low
Rockland				Less than 0.2	Less than 0.5	Not suitable	
Rockland, Mimosa and Inman materials.		CH or MH	A–7	Less than 0.2	0.5–0.15	Not suitable	
Rockland, Talbott material.		CH or MH	A–7	Less than 0.2	0.5–0.15	Not suitable	
Settling basins		CL, CH, or MH	A–6 or A–7			Fair to not suitable.	
Talbott	0–8	ML or CL	A–4 or A–6	0.2–0.8	0.15–0.20	Good	High
	8–14	CL or CH	A–6 or A–7	0.2–0.8	0.15–0.20	Poor	High
	14–26	CH or MH	A–7	Less than 0.2	0.10–0.15	Poor	High

[1] Available moisture-holding capacity is the amount of water that may be removed from a moist soil (at field capacity) by plants.

[2] Shaly material classified as GM or GC (A–2 or A–4) in place, may be reduced to ML or CL (A–4 or A–6) by construction operations.

TABLE 30.—*Soil characteristics affecting earth construction*

[The absence of data means that no unusual problems are anticipated]

Soil series	Highways				Farm ponds
	Suitability for earthwork in prolonged wet periods.[1]	Characteristics that affect vertical alignment		Suitability as a source of subbase material [2]	
		Materials	Drainage		
Armour	Not suitable	Bedrock [3]		Poorly suitable [4]	Possible caverns in limestone bedrock.
Ashwood	Little or no value for earthwork.	Bedrock		Not suitable	Bedrock near surface.
Bodine	Fairly suitable	Bedrock [3]		Suitable	Permeable substrata.
Braxton	Not suitable	Bedrock [3]		Not suitable	Possible caverns in limestone bedrock.
Burgin	Not suitable		Water table;[5] seepage at 1 to 2 feet.	Not suitable	
Captina	Not suitable	Bedrock	Water table;[5] seepage at 2 to 3 feet.	Not suitable	
Colbert	Not suitable	Bedrock		Not suitable	Shallow depth to bedrock.
Culleoka	Fairly suitable	Bedrock [3]		Fairly suitable to suitable. [4]	Rock on surface; permeable substrata.
Dellrose	Poorly suitable	Bedrock [3]		Fairly suitable	
Dickson	Not suitable	Bedrock	Water table;[5] seepage at 2 to 3 feet.	Not suitable	
Donerail	Not suitable	Bedrock	Water table;[5] seepage at 2 to 3 feet.	Not suitable	Possible caverns in limestone bedrock.
Dunning	Not suitable		Water table; occasionally flooded in places.	Not suitable	
Egam	Not suitable		Occasionally flooded in places.	Not suitable	
Emory	Poorly suitable to not suitable.		Water table	Not suitable	
Etowah	Not suitable	Bedrock [3]		Poorly suitable [4]	Gravel in places.
Frankstown	Poorly suitable	Bedrock [3]		Fairly suitable	Permeable substrata.
Godwin	Poorly suitable to not suitable.		Water table	Not suitable	
Greendale	Poorly suitable to not suitable.	Bedrock [3]	Water table; seepage at 1 to 2½ feet.	Poorly suitable	
Gullied land	Not suitable	Bedrock [3]		Not suitable	
Hagerstown	Not suitable	Bedrock [3]		Not suitable	Possible caverns in limestone bedrock.
Hampshire	Not suitable	Bedrock [3]		Not suitable	
Hermitage	Not suitable	Bedrock [3]		Not suitable	
Hicks	Not suitable	Bedrock [3]		Poorly suitable	Permeable substrata in places.
Huntington	Poorly suitable to not suitable.		Occasionally flooded	Suitable. [4]	
Inman	Not suitable	Bedrock [3]		Not suitable	
Lindside	Not suitable		Water table; occasionally flooded in places.	Not suitable	
Made land	Not suitable				
Maury	Not suitable	Bedrock [3]		Not suitable	Possible caverns in limestone bedrock.
Mimosa	Not suitable	Bedrock [3]		Not suitable	
Mine areas, reclaimed	Not suitable	Bedrock [3]		Not suitable	
Mines, pits, and dumps					
Mountview	Not suitable	Bedrock [3]		Not suitable	
Pace	Not suitable	Bedrock [3]		Poorly suitable	
Pickaway	Not suitable	Bedrock [3]	Water table;[5] seepage at 2 to 3 feet.	Not suitable	
Riverwash	Fairly suitable to not suitable.		Occasionally flooded	Suitable. [4]	
Rockland	Little or no value for earthwork.	Bedrock [3]		Not suitable	
Rockland, Mimosa and Inman materials.	Little or no value for earthwork.	Bedrock [3]		Not suitable	
Rockland, Talbott material.	Little or no value for earthwork.	Bedrock [3]		Not suitable	
Settling basins			Flooded	Not suitable	
Talbott	Not suitable	Bedrock [3]		Not suitable	

[1] Refers to soil material. Rock excavations may not be affected by prolonged wet periods.
[2] Subbase materials include A-2-4 or better materials; the plasticity index should be no greater than 10. Rating is based on soil classification and thickness of deposit.
[3] Depth to bedrock may control location of grade.
[4] Suitable coarse-grained materials (sand or gravel or both) occur mainly in the cherty, flaggy, or sandy soil types.
[5] Perched water table in prolonged wet periods.

TABLE 31.—*Classification of soils by American Association of State Highway Officials*[1]

General classification	Granular materials (35 percent or less passing No. 200 sieve)							Silt-clay materials (More than 35 percent passing No. 200 sieve)				
	A–1		A–3	A–2				A–4	A–5	A–6	A–7	
Group classification	A–1–a	A–1–b		A–2–4	A–2–5	A–2–6	A–2–7				A–7–5	A–7–6
Sieve analysis: Percent passing:												
No. 10	50 maximum.											
No. 40	30 maximum.	50 maximum.	51 minimum.									
No. 200	15 maximum.	25 maximum.	10 maximum.	35 maximum.	35 maximum.	35 maximum.	35 maximum.	36 minimum.	36 minimum.	36 minimum.	36 minimum.	36 minimum.
Characteristics of fraction passing No. 40 sieve:												
Liquid limit	---------	---------	NP [2]	40 maximum.	41 minimum.	40 maximum.	41 minimum.	40 maximum.	41 minimum.	40 maximum.	41 minimum.	41 minimum.
Plasticity index	6 maximum.	6 maximum.	NP [2]	10 maximum.	10 maximum.	11 minimum.	11 minimum.	10 maximum.	10 maximum.	11 minimum.	11 minimum. [3]	11 minimum. [3]
Group index	0	0	0	0	0	4 maximum.	4 maximum.	8 maximum.	12 maximum.	16 maximum.	20 maximum.	20 maximum.
Usual types of significant constituent materials.	Stone fragments, gravel, and sand.	Stone fragments, gravel, and sand.	Fine sand.	Silty gravel and sand.	Silty gravel and sand.	Clayey gravel and sand.	Clayey gravel and sand.	Nonplastic to moderately plastic silty soils.	Highly elastic silts.	Medium plastic clays.	Highly plastic clays.	Highly plastic clays.
General rating as subgrade.	Excellent to good					Fair to poor						

[1] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1; ed. 7): A.A.S.H.O. Designation: M 145–49 (*2*).

[2] NP = nonplastic.

[3] Plasticity index of A–7–5 subgroup is equal to or less than LL minus 30. Plasticity index of A–7–6 subgroup is greater than LL minus 30.

TABLE 32.—*Characteristics of soil groups*

Major divisions	Group symbol	Soil description	Value as foundation material[2]	Value as base course directly under bituminous pavement	Value for embankments
Coarse-grained soils (*50 percent or less passing No. 200 sieve*).					
Gravels and gravelly soils (*more than half of coarse fraction retained on No. 4 sieve*).	GW	Well-graded gravels and gravel-sand mixtures; little or no fines.	Excellent	Good	Very stable; use in pervious shells of dikes and dams.
	GP	Poorly graded gravels and gravel-sand mixtures; little or no fines.	Good to excellent	Poor to fair	Reasonably stable; use in pervious shells of dikes and dams.
	GM	Silty gravels and gravel-sand-silt mixtures.	Good	Poor to good	Reasonably stable; not particularly suited to shells, but may be used for impervious cores or blankets.
	GC	Clayey gravels and gravel-sand-clay mixtures.	Good	Poor	Fairly stable; may be used for impervious core.
Sands and sandy soils (*more than half of coarse fraction passing No. 4 sieve*).	SW	Well-graded sands and gravelly sands; little or no fines.	Good	Poor	Very stable; may be used in pervious sections; slope protection required.
	SP	Poorly graded sands and gravelly sands; little or no fines.	Fair to good	Poor to not suitable	Reasonably stable; may be used in dike section having flat slopes.
	SM	Silty sands and sand-silt mixtures.	Fair to good	Poor to not suitable	Fairly stable; not particularly suited to shells, but may be used for impervious cores or dikes.
	SC	Clayey sands and sand-clay mixtures.	Fair to good	Not suitable	Fairly stable; use as impervious core for flood-control structure.
Fine-grained soils (*more than 50 percent passing No. 200 sieve*).					
Silts and clays (*liquid limit of 50 or less*).	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, and clayey silts of slight plasticity.	Fair to poor	Not suitable	Poor stability; may be used for embankments if properly controlled.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, and lean clays.	Fair to poor	Not suitable	Stable; use in impervious cores and blankets.
	OL	Organic silts and organic clays having low plasticity.	Poor	Not suitable	Not suitable for embankments.
Silts and clays (*liquid limit greater than 50*).	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, and elastic silts.	Poor	Not suitable	Poor stability; use in core of hydraulic fill dam; not desirable in rolled fill construction.
	CH	Inorganic clays having high plasticity and fat clays.	Poor to very poor	Not suitable	Fair stability on flat slopes; use in thin cores, blankets, and dike sections of dams.
	OH	Organic clays having medium to high plasticity and organic silts.	Poor to very poor	Not suitable	Not suitable for embankments.
Highly organic soils:	Pt	Peat and other highly organic soils.	Not suitable	Not suitable	Not used in embankments,

[1] Based on information in the Unified Soil Classification System, Technical Memorandum No. 3-357, *(11)*. Ratings and ranges in test values are for guidance only. Design should be based on field survey and test of samples from construction site.

[2] Ratings are for subgrade and subbases for flexible pavement.

[3] Determined in accordance with test designation: T 99–49, A.A.S.H.O.

[4] Pneumatic-tire rollers may be advisable, particularly when moisture content is higher than optimum.

in Unified Soil Classification System[1]

Compaction: Characteristics and recommended equipment	Approximate range in A.A.S.H.O. maximum dry density[3]	Field (in-place) CBR	Subgrade modulus, k	Drainage characteristics	Comparable groups in A.A.S.H.O. classification
	Lb./cu. ft.		*Lb./sq. in./in.*		
Good; use crawler-type tractor, pneumatic-tire roller, or steel-wheel roller.	125–135	60–80	300+	Excellent	A–1
Same	115–125	25–60	300+	Excellent	A–1
Good, but needs close control of moisture; use pneumatic-tire or sheepsfoot roller.	120–135	20–80	200–300+	Fair to practically impervious	A–1 or A–2
Fair, use pneumatic-tire or sheepsfoot roller.	115–130	20–40	200–300	Poor to practically impervious	A–2
Good; use crawler-type tractor or pneumatic-tire roller.	110–130	20–40	200–300	Excellent	A–1
Same	100–120	10–25	200–300	Excellent	A–1 or A–3
Good, but needs close control of moisture; use pneumatic-tire or sheepsfoot roller.	110–125	10–40	200–300	Poor to practically impervious	A–1, A–2, or A–4
Fair; use pneumatic-tire roller or sheepsfoot roller.	105–125	10–20	200–300	Poor to practically impervious	A–2, A–4, or A–6
Good to poor; close control of moisture is essential; use pneumatic-tire or sheepsfoot roller.	95–120	5–15	100–200	Fair to poor	A–4, A–5, or A–6
Fair to good; use pneumatic-tire or sheepsfoot roller.	95–120	5–15	100–200	Practically impervious	A–4, A–6, or A–7
Fair to poor; use sheepsfoot roller[4]	80–100	4–8	100–200	Poor	A–4, A–5, A–6, or A–7
Poor to very poor; use sheepsfoot roller[4].	70–95	4–8	100–200	Fair to poor	A–5 or A–7
Fair to poor; use sheepsfoot roller[4]	75–105	3–5	50–100	Practically impervious	A–7
Poor to very poor; use sheepsfoot roller[4].	65–100	3–5	50–100	Practically impervious	A–5 or A–7
dams, or subgrades for pavements				Fair to poor	None

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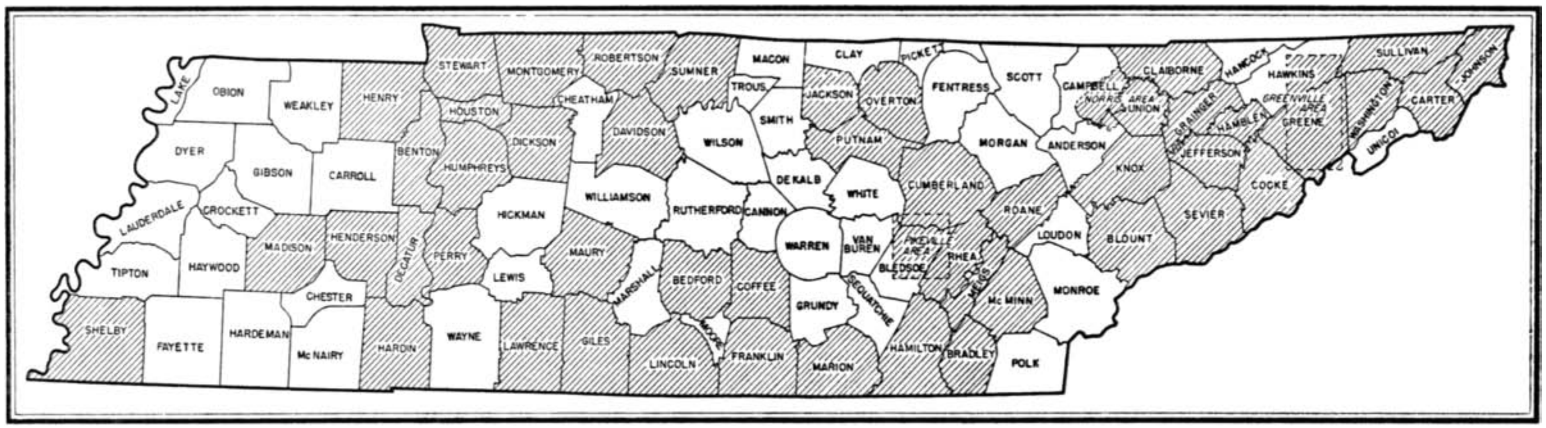
U. S. GOVERNMENT PRINTING OFFICE: 1959



Areas surveyed in Tennessee shown by shading.

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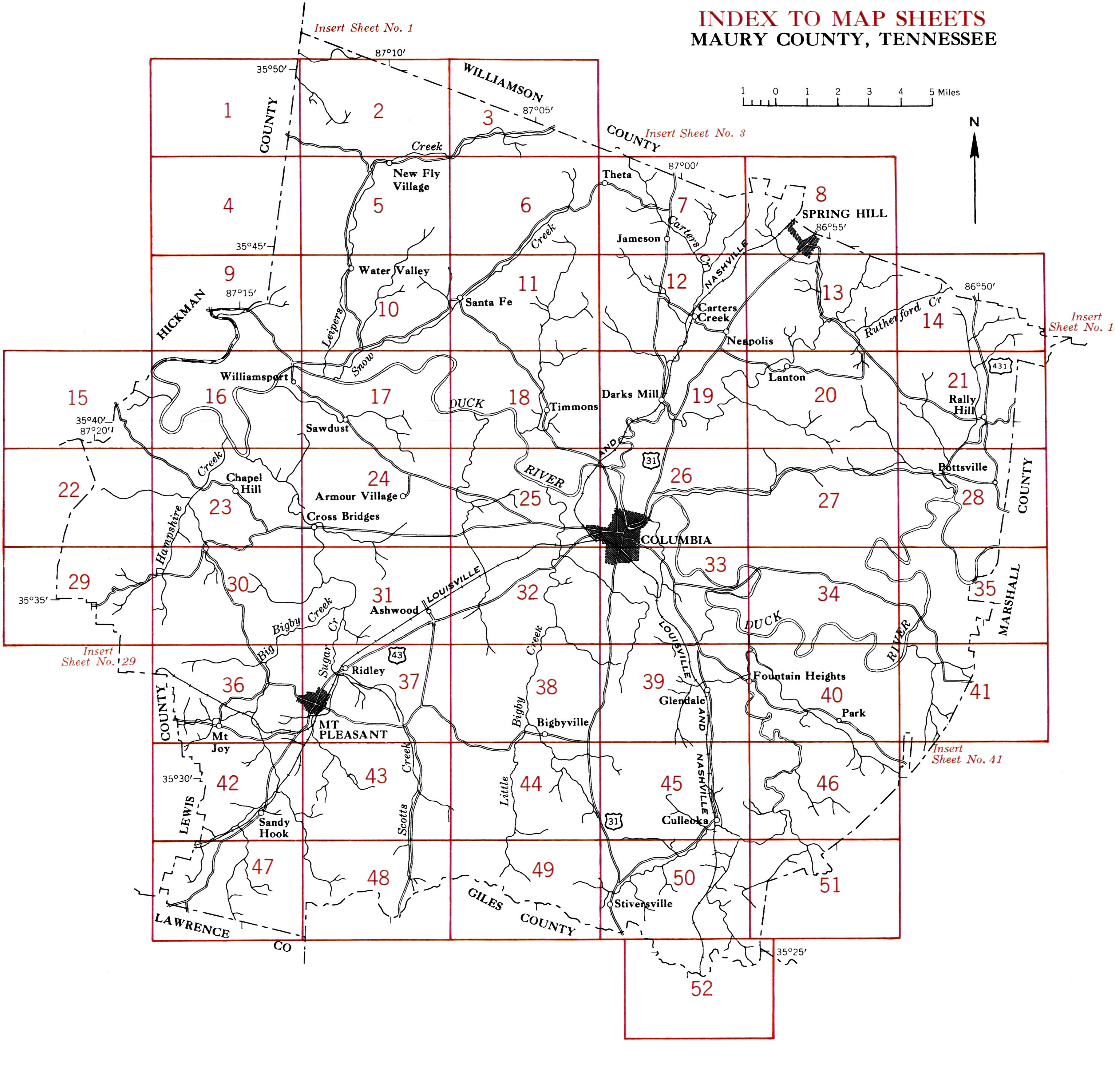
INDEX TO MAP SHEETS
MAURY COUNTY, TENNESSEE



SOILS LEGEND

SYMBOL	NAME
Aa	Armour cherty silt loam, eroded gently sloping phase
Ab	Armour cherty silt loam, eroded sloping phase
Ac	Armour cherty silty clay loam, severely eroded sloping phase
Ad	Armour gravelly silty clay loam, severely eroded sloping terrace phase
Ae	Armour silt loam, eroded gently sloping phase
Af	Armour silt loam, eroded gently sloping terrace phase
Ag	Armour silt loam, eroded sloping phase
Ah	Armour silty clay loam, severely eroded sloping phase
Ak	Ashwood rocky silt loam, gently sloping phase
Al	Ashwood rocky silty clay loam, eroded sloping phase
Am	Ashwood rocky silty clay, severely eroded sloping phase
Ba	Bodine cherty silt loam, sloping phase
Bb	Bodine cherty silt loam, eroded sloping phase
Bc	Bodine cherty silt loam, moderately steep phase
Bd	Bodine cherty silt loam, eroded moderately steep phase
Be	Bodine cherty silt loam, steep phase
Bf	Braxton cherty silty clay, severely eroded moderately steep phase
Bg	Braxton cherty silty clay loam, severely eroded sloping phase
Bh	Braxton silt loam, eroded gently sloping phase
Bk	Braxton silty clay loam, eroded sloping phase
Bl	Braxton silty clay loam, eroded moderately steep phase
Bm	Burgin silt loam, phosphatic phase
Bn	Burgin silty clay loam, gently sloping phase
Bo	Burgin silty clay loam, gently sloping phosphatic phase
Ca	Captina silt loam, eroded gently sloping phosphatic phase
Cb	Colbert silty clay, severely eroded sloping phosphatic phase
Cc	Colbert silty clay loam, eroded gently sloping phosphatic phase
Cd	Culleoka clay loam, severely eroded moderately steep phase
Ce	Culleoka flaggy clay loam, severely eroded moderately steep phase
Cf	Culleoka flaggy clay loam, severely eroded steep phase
Cg	Culleoka flaggy loam, eroded moderately steep phase
Ch	Culleoka flaggy loam, eroded steep phase
Ck	Culleoka loam, eroded moderately steep phase
Da	Dellrose cherty silt loam, eroded sloping phase
Db	Dellrose cherty silt loam, eroded moderately steep phase
Dc	Dellrose cherty silt loam, severely eroded moderately steep phase
Dd	Dellrose cherty silt loam, eroded steep phase
De	Dickson silt loam, eroded gently sloping phase
Df	Donerail silt loam, gently sloping phase
Dg	Dunning silty clay loam, phosphatic phase
Dh	Dunning and Lindside silty clay loams
Ea	Egam silty clay loam, phosphatic phase
Eb	Emory silt loam, gently sloping phase
Ec	Etowah gravelly silty clay loam, severely eroded sloping phase
Ed	Etowah gravelly silty clay loam, severely eroded sloping phosphatic phase
Ee	Etowah gravelly silty clay loam, severely eroded moderately steep phosphatic phase
Ef	Etowah silt loam, eroded gently sloping phase
Eg	Etowah silt loam, eroded gently sloping phosphatic phase
Eh	Etowah silt loam, eroded sloping phosphatic phase
Fa	Frankstown cherty silt loam, eroded sloping phase
Fb	Frankstown cherty silt loam, moderately steep phase
Fc	Frankstown cherty silt loam, eroded moderately steep phase
Fd	Frankstown coarse cherty silt loam, sloping phase
Fe	Frankstown coarse cherty silt loam, eroded sloping phase
Ff	Frankstown coarse cherty silt loam, moderately steep phase
Fg	Frankstown coarse cherty silt loam, eroded moderately steep phase
Fh	Frankstown coarse cherty silt loam, steep phase

SYMBOL	NAME
Ga	Godwin silt loam
Gb	Greendale silt loam
Gc	Gullied land
Gd	Gullied land, phosphatic
Ha	Hagerstown silt loam, eroded gently sloping phase
Hb	Hagerstown silty clay loam, severely eroded sloping phase
Hc	Hagerstown rocky silty clay loam, eroded gently sloping phase
Hd	Hampshire silt loam, eroded gently sloping phase
He	Hermitage silt loam, eroded gently sloping phase
Hf	Hermitage silt loam, eroded sloping phase
Hg	Hicks flaggy silt loam, eroded sloping phase
Hh	Hicks silt loam, eroded gently sloping phase
Hk	Hicks silt loam, eroded sloping phase
Hl	Huntington cherty silt loam, phosphatic phase
Hm	Huntington cherty silt loam, local alluvium phosphatic phase
Hn	Huntington silt loam, depressional phase
Ho	Huntington silt loam, phosphatic phase
Hp	Huntington silt loam, depressional phosphatic phase
Hr	Huntington silt loam, local alluvium phosphatic phase
Ia	Inman shaly silty clay loam, severely eroded moderately steep phase
Ib	Inman shaly silty clay loam, severely eroded steep phase
Ic	Inman and Hampshire silty clay loams, severely eroded sloping phase
La	Lindside cherty silt loam, phosphatic phase
Lb	Lindside silt loam, local alluvium phase
Lc	Lindside silt loam, phosphatic phase
Ld	Lindside silt loam, local alluvium phosphatic phase
Ma	Made land
Mb	Maury silt loam, eroded gently sloping phase
Mc	Maury silt loam, eroded gently sloping coarse phase
Md	Maury silt loam, eroded sloping coarse phase
Me	Maury silty clay loam, eroded sloping phase
Mf	Maury silty clay loam, severely eroded sloping coarse phase
Mg	Mimosa cherty silt loam, eroded sloping phase
Mh	Mimosa cherty silt loam, eroded moderately steep phase
Mk	Mimosa cherty silty clay loam, severely eroded sloping phase
Ml	Mimosa cherty silty clay loam, severely eroded moderately steep phase
Mm	Mimosa silt loam, eroded gently sloping phase
Mn	Mimosa silty clay, severely eroded sloping phase
Mo	Mimosa silty clay loam, eroded sloping phase
Mp	Mines, pits, and dumps
Mr	Mine areas, reclaimed
Ms	Mountview silt loam, eroded gently sloping phase
Mt	Mountview silt loam, sloping shallow phase
Mu	Mountview silt loam, eroded sloping shallow phase
Mv	Mountview silty clay loam, severely eroded sloping shallow phase
Pa	Pace cherty silt loam, eroded sloping phase
Pb	Pickaway silt loam, somewhat poorly drained variant
Pc	Pickaway silt loam, eroded gently sloping phase
Ra	Riverwash
Rb	Rockland, sloping
Rc	Rockland, steep
Rd	Rockland, Mimosa and Inman materials, sloping
Re	Rockland, Mimosa and Inman materials, steep
Rf	Rockland, Talbott material, sloping
Sa	Settling basins
Ta	Talbott silty clay loam, eroded gently sloping phase
Tb	Talbott silty clay, severely eroded sloping phase

Soils surveyed 1948-52 by A. B. Harmon, Jr., Edwin Lusk, Joe Overton, John H. Elder, Jr., and Lewis Williams, Tennessee Agricultural Experiment Station, and William A. Cole, U. S. Department of Agriculture.
Correlation by Max J. Edwards, Soil Conservation Service, U. S. Department of Agriculture.

Soil map constructed by Cartographic Division, Soil Conservation Service, USDA, from 1949 aerial photographs. Controlled mosaic based on polyconic projection, 1927 North American datum.

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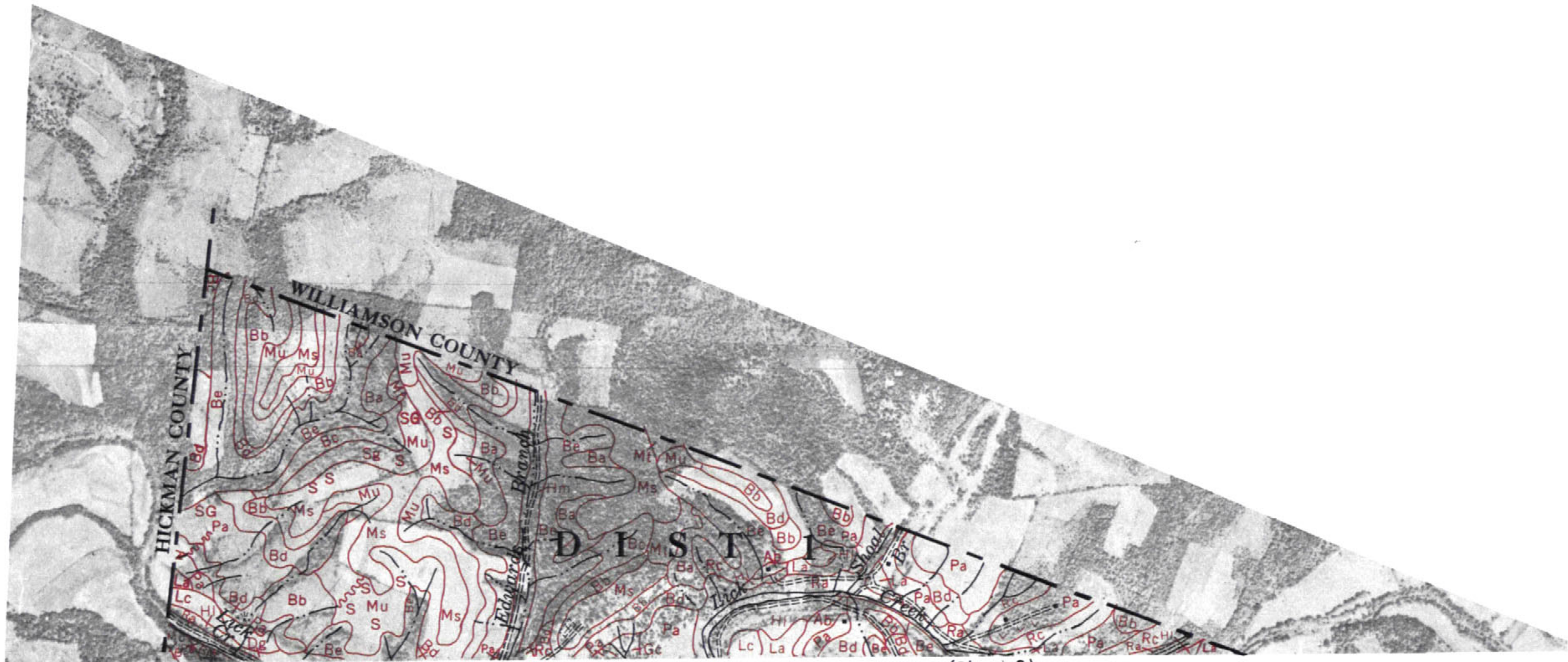

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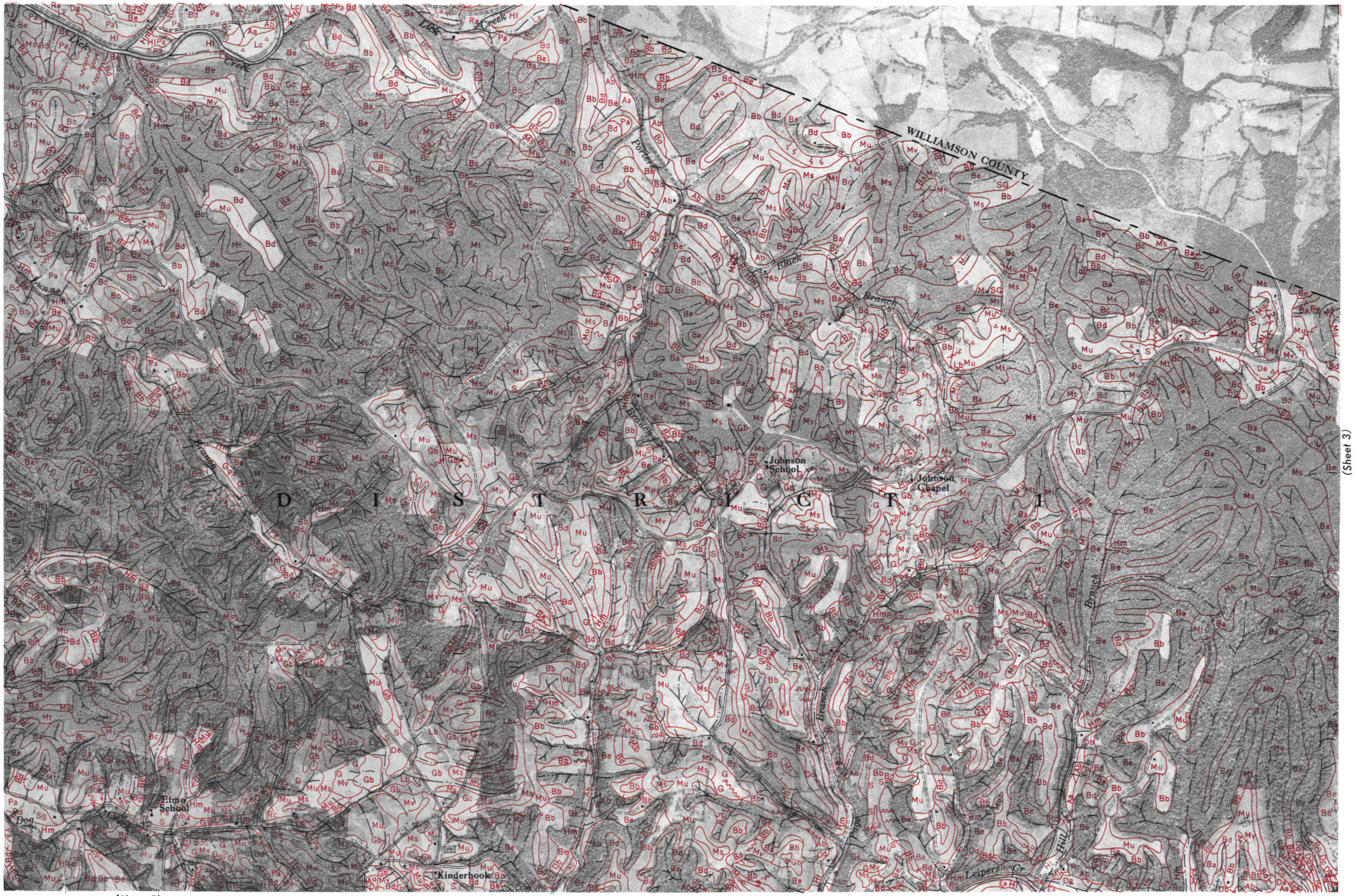

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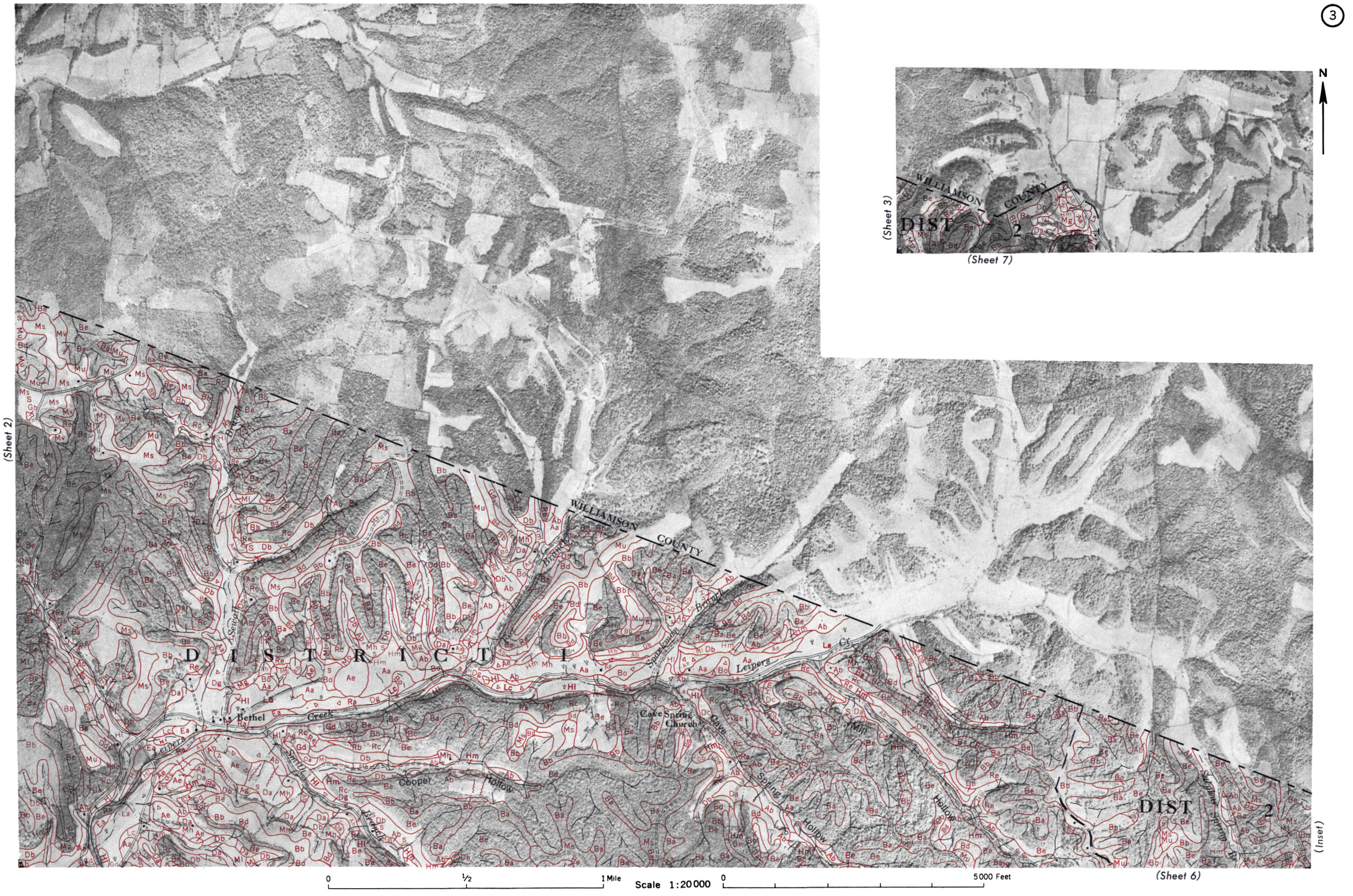

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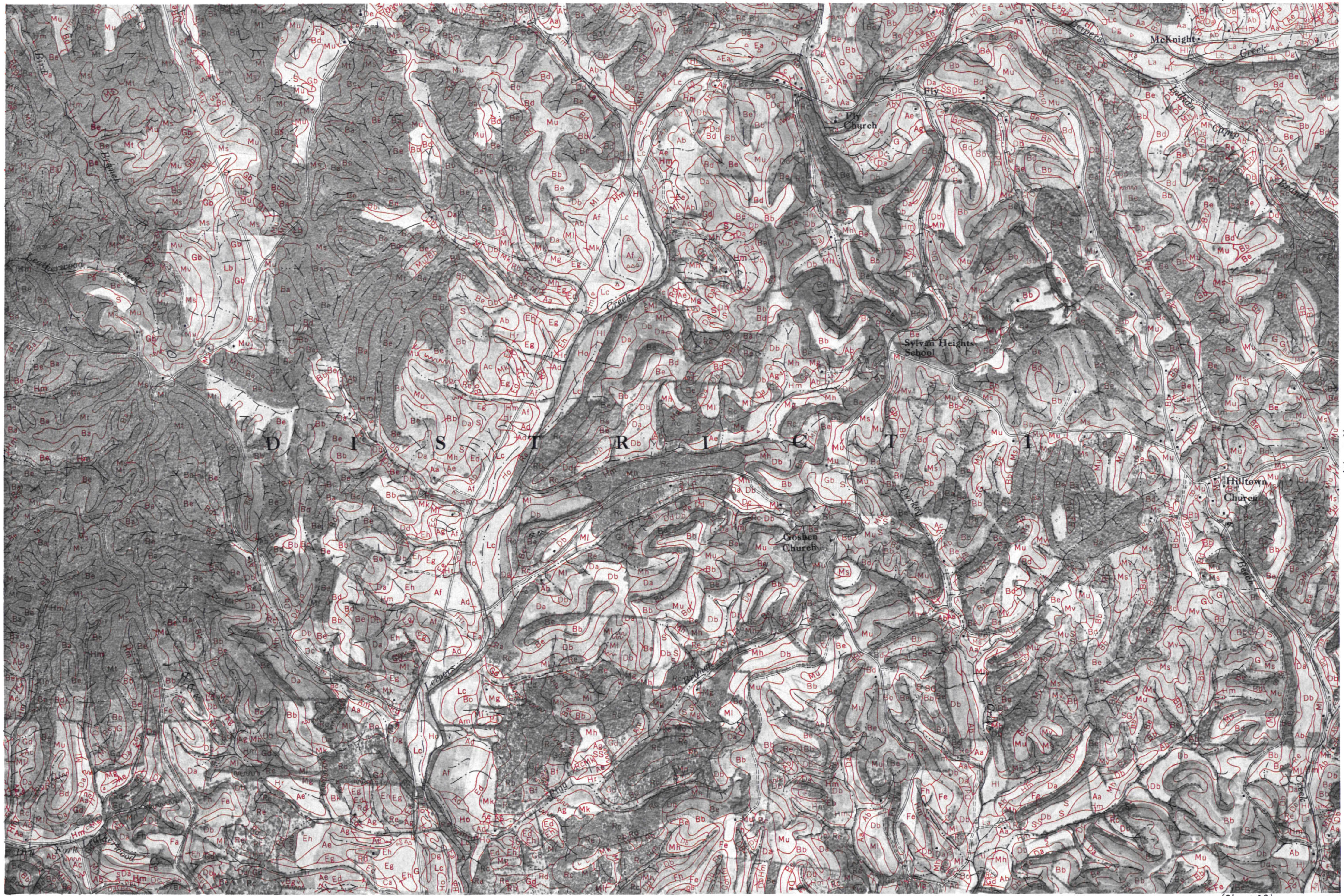

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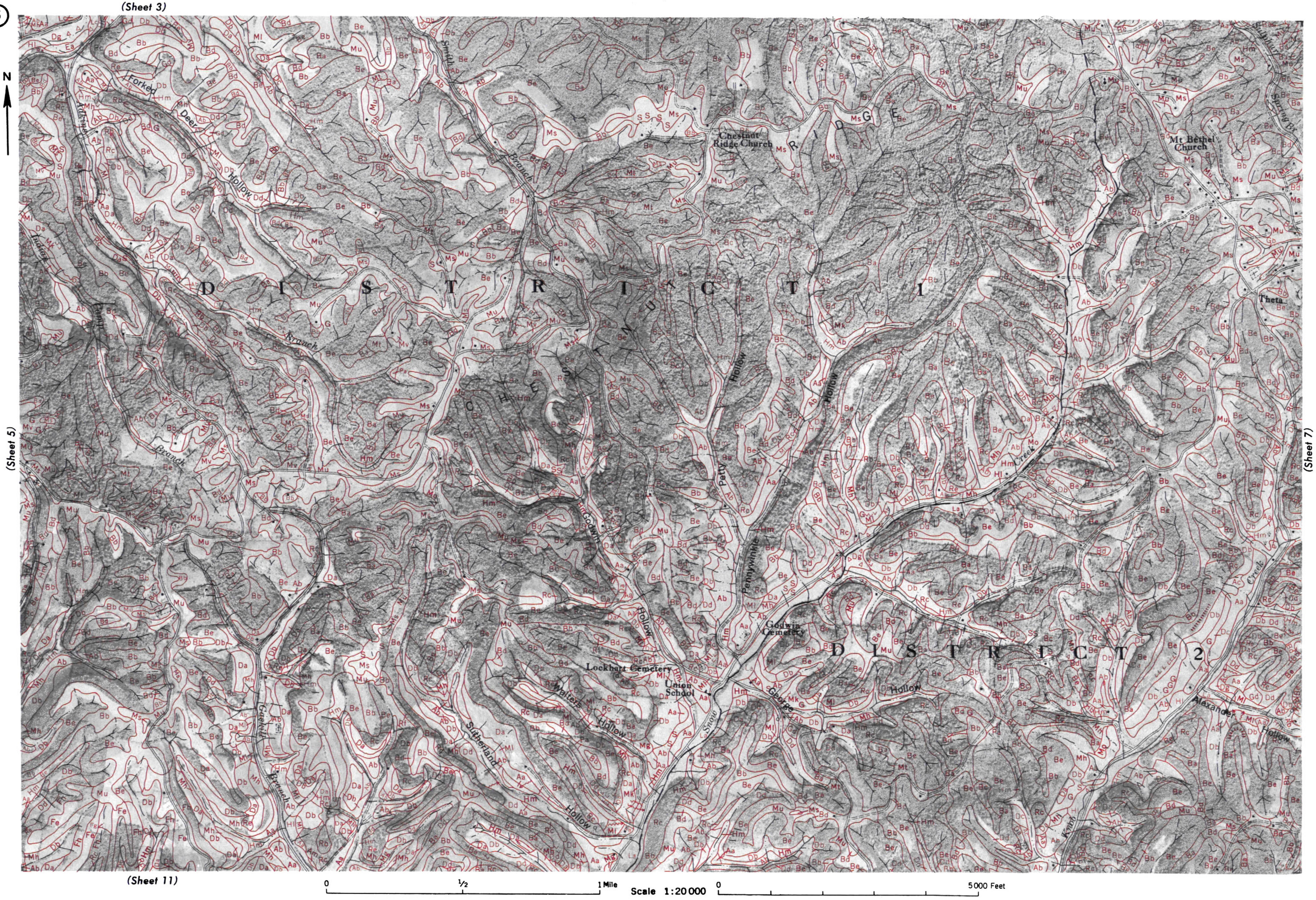
(Sheet 3)
(Sheet 5)
(Sheet 7)
(Sheet 11)
N
Chestnut Ridge Church
Mt Bethel Church
Theta
DISTRICT 1
DISTRICT 2
CHESTNUT RIDGE
Forked Deer Hollow
Smith Branch
Branch
Petty Hollow
Pennywinkle Hollow
Hollow
Creek
Godwin Cemetery
Lockhart Cemetery
Union School
Walters Hollow
Sutherland Hollow
Gaskill Branch
Snow Creek
Alexander Hollow
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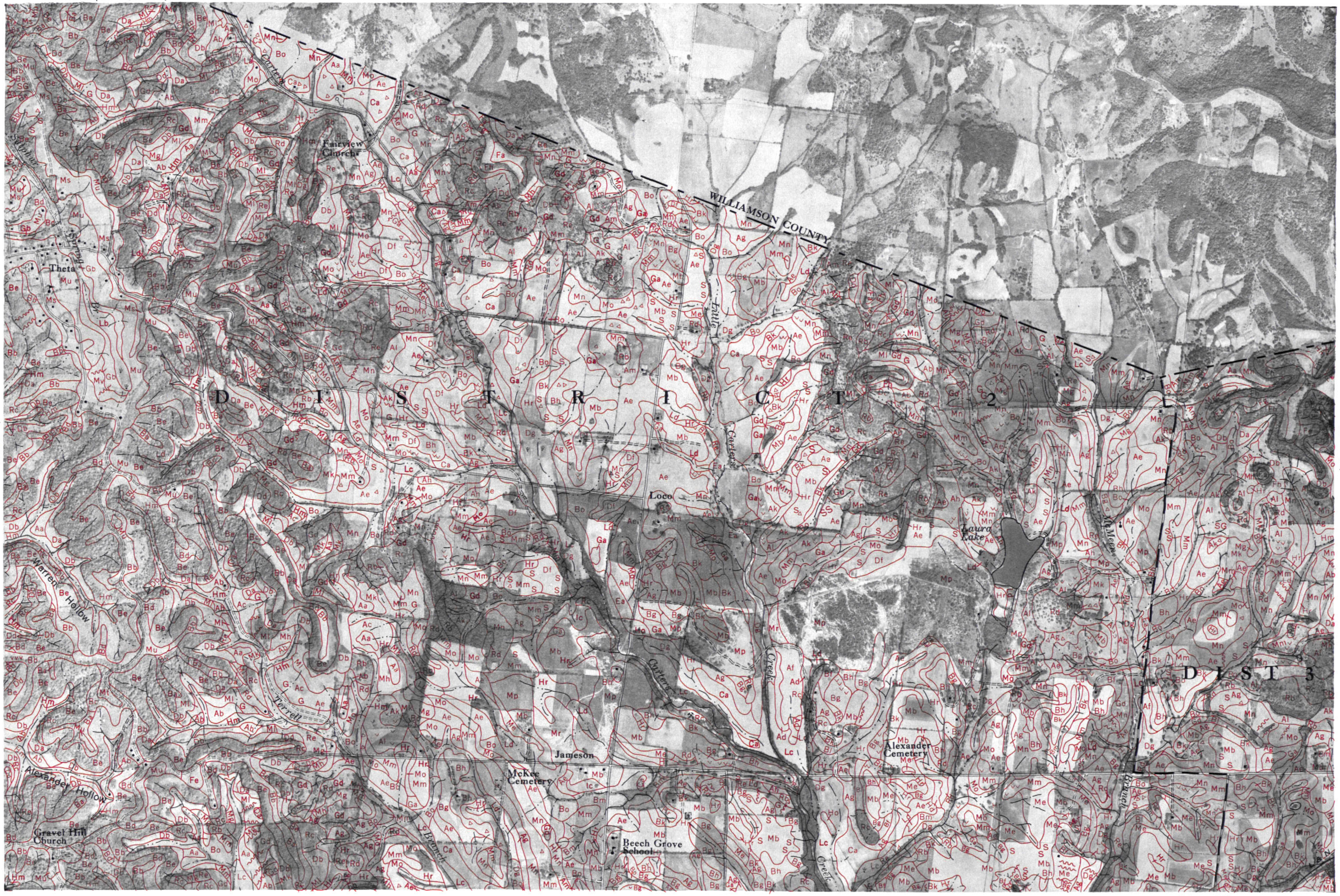

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N

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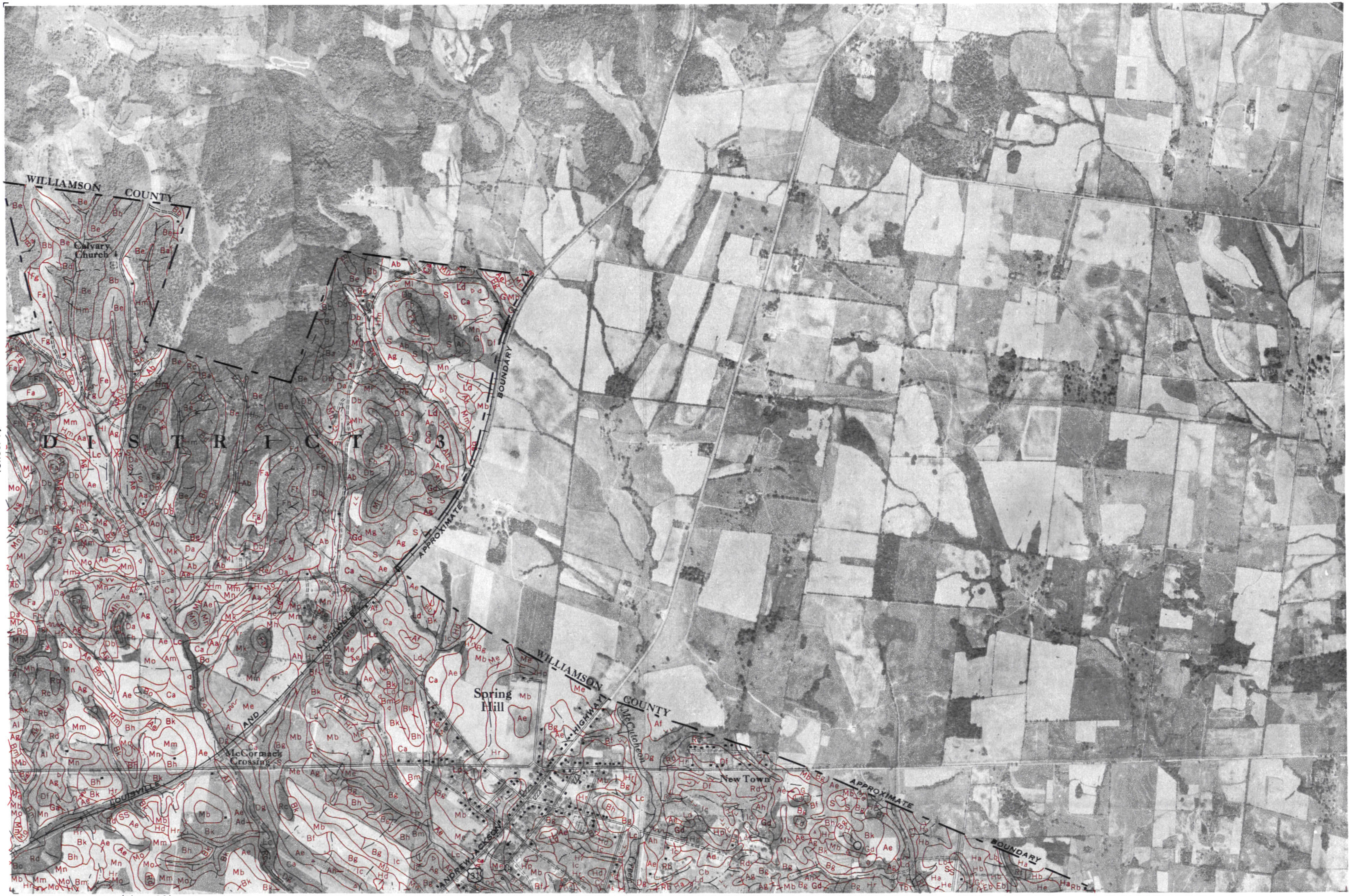

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0 ½ 1 Mile

Scale 1:20000

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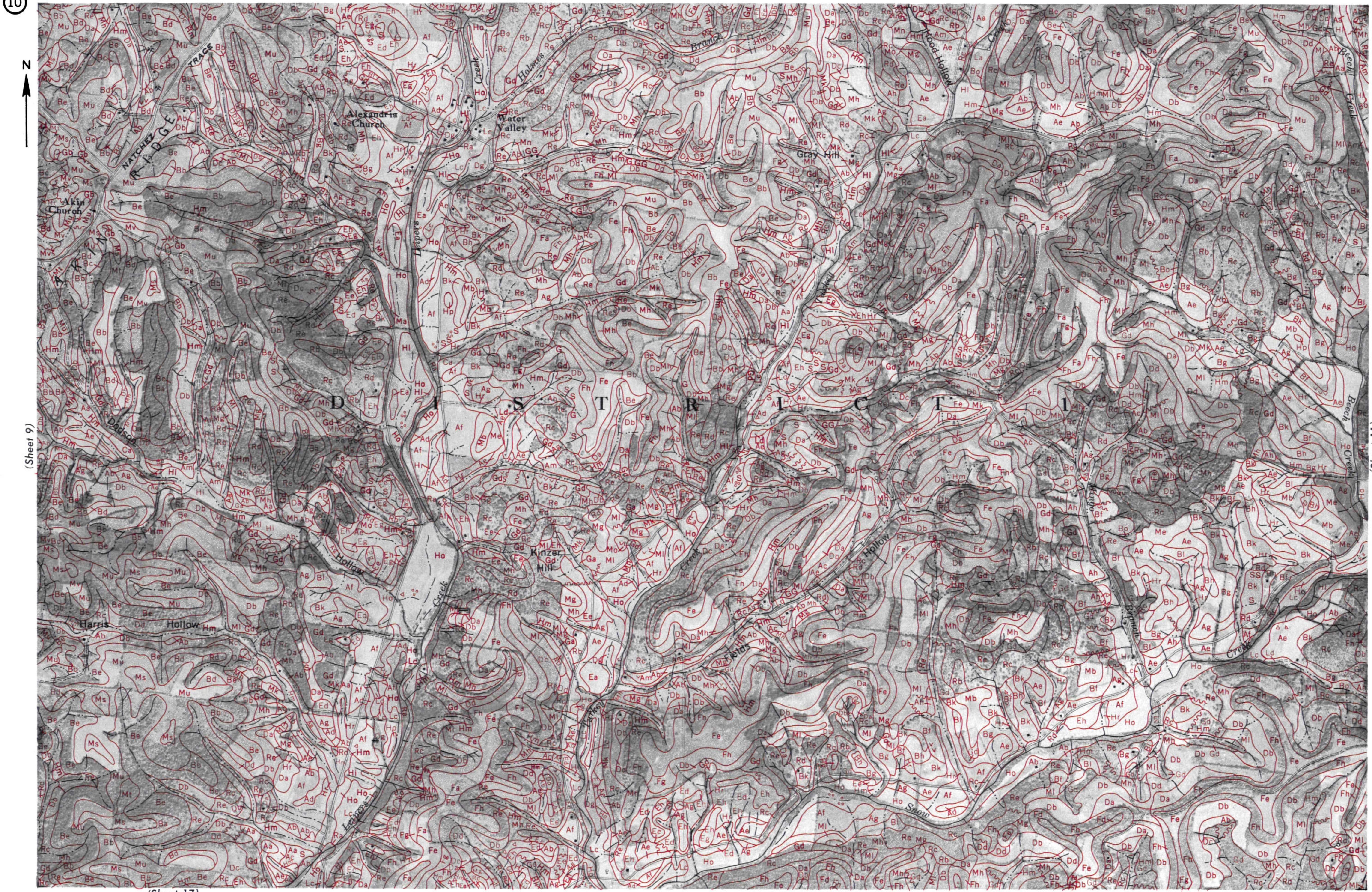

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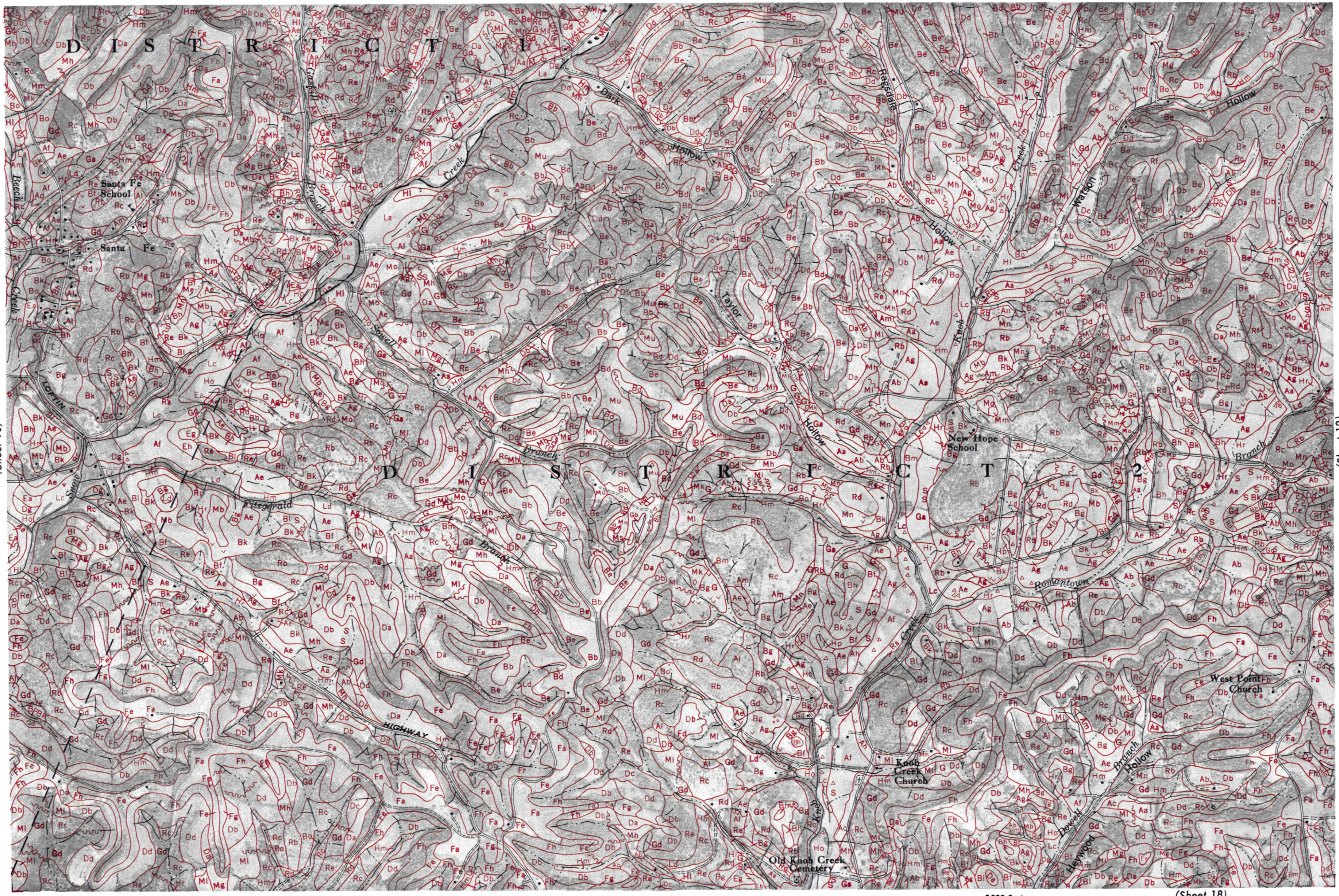

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0 ½ 1 Mile **Scale 1:20000** 0 5000 Feet

MAURY COUNTY, TENNESSEE

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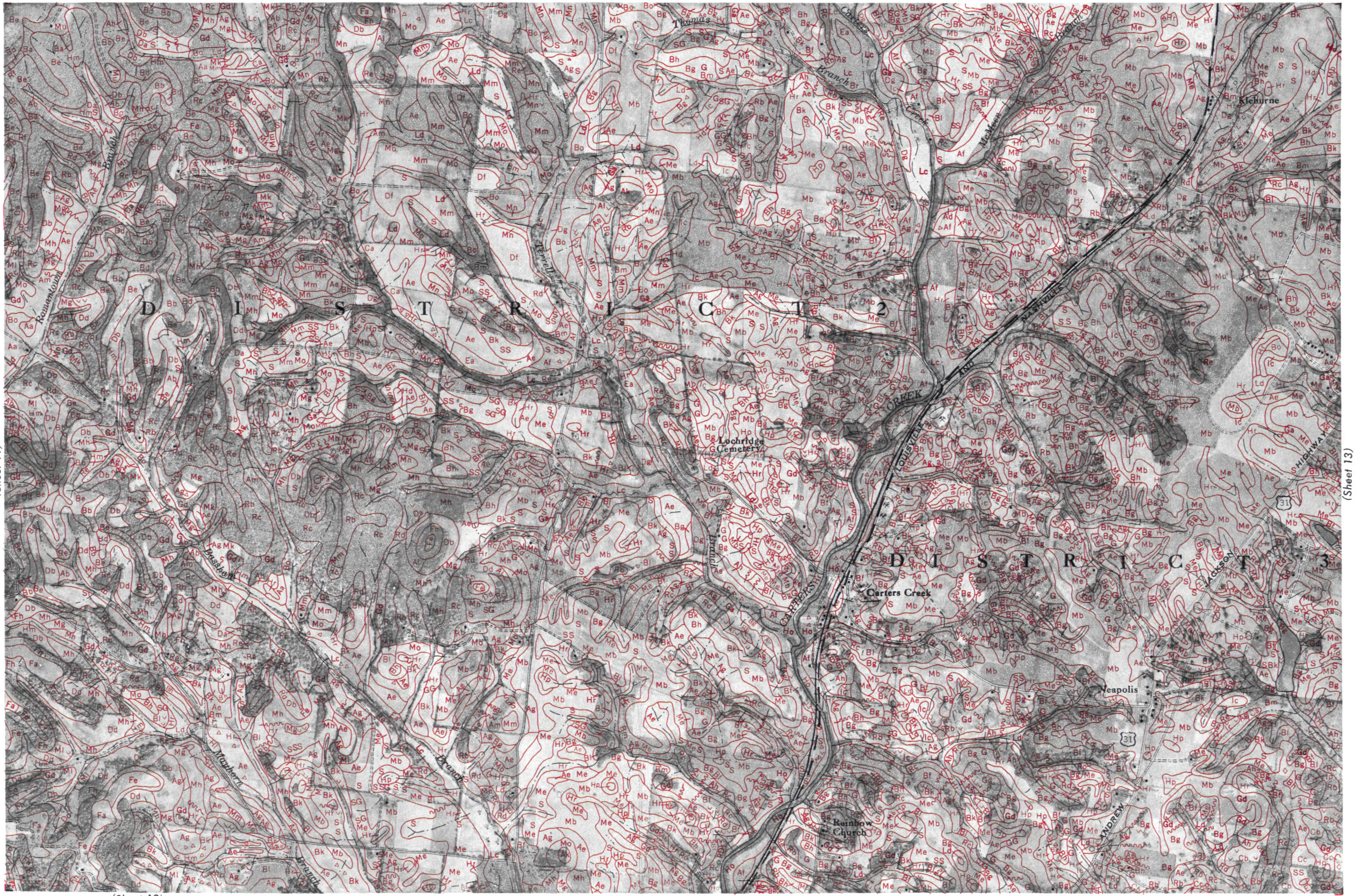

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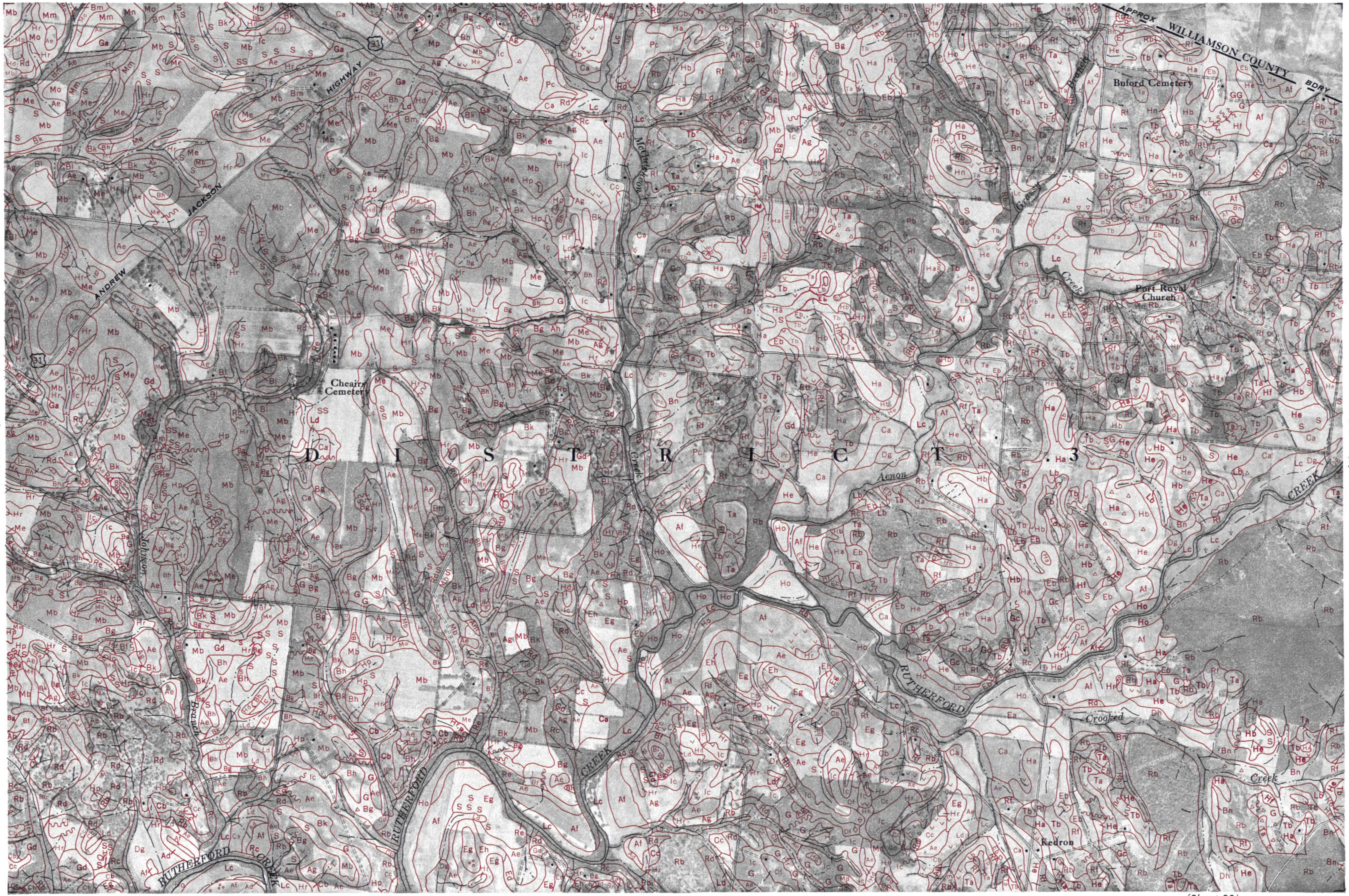

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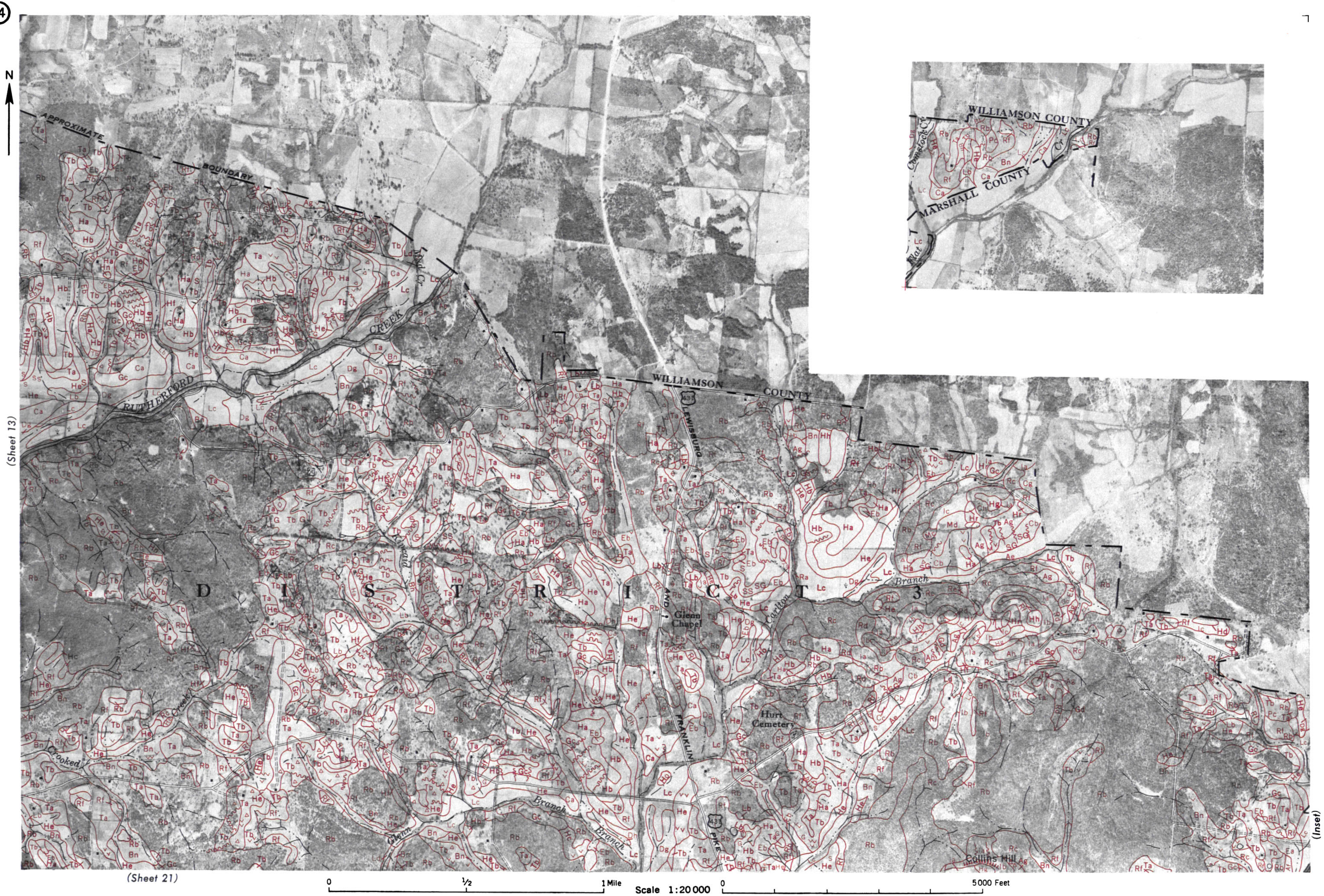
N
APPROXIMATE BOUNDARY
WILLIAMSON COUNTY
MARSHALL COUNTY
RUTHERFORD CREEK
LEWISBURG AND FRANKLIN PIKE
DISTRICT 3
Glenn Chapel
Hurt Cemetery
Collins Hill
Carlton Branch
Crooked Creek
Glenn Branch
Comstock Cr.
Flat Cr.
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½
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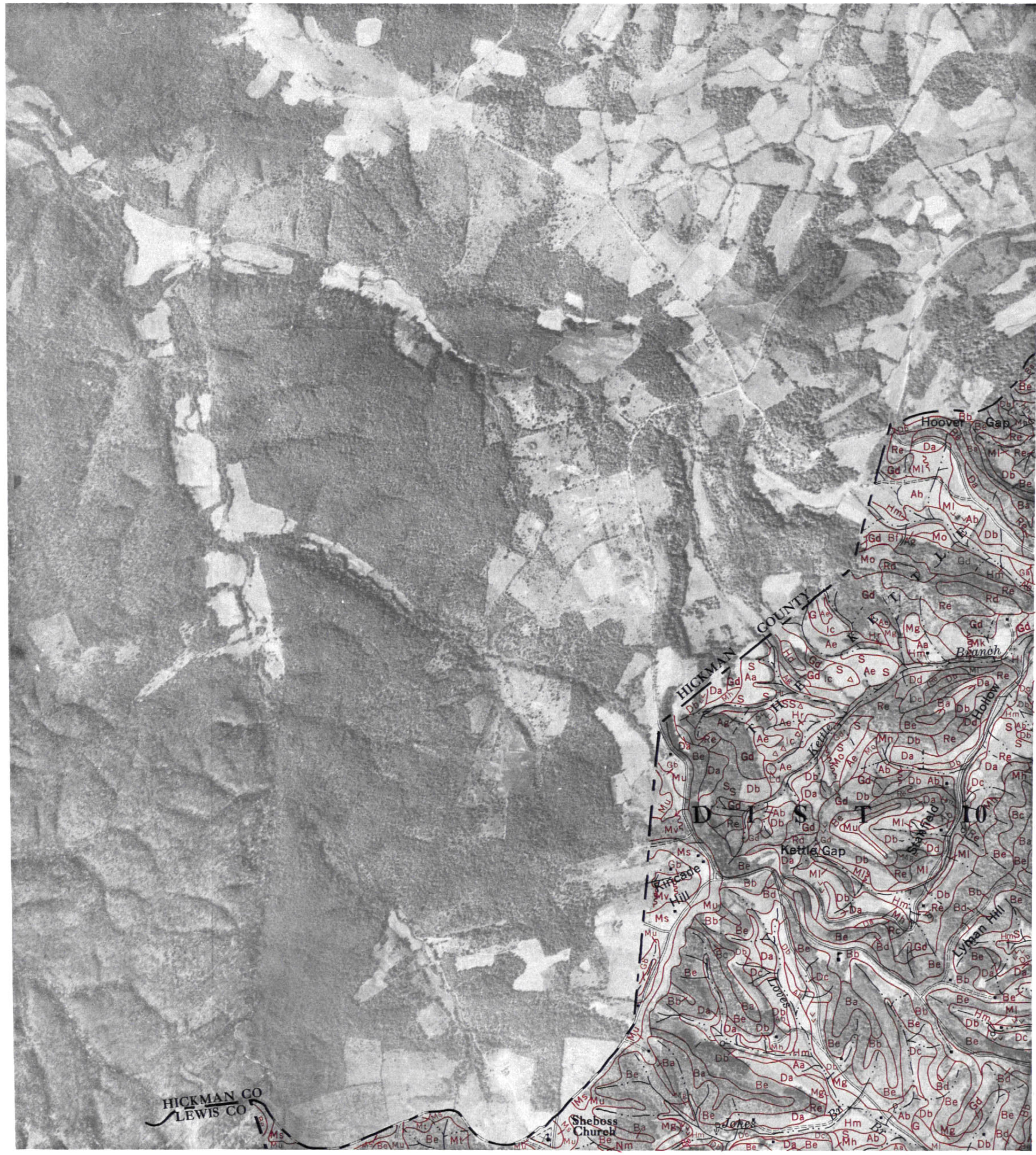

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MAURY COUNTY, TENNESSEE

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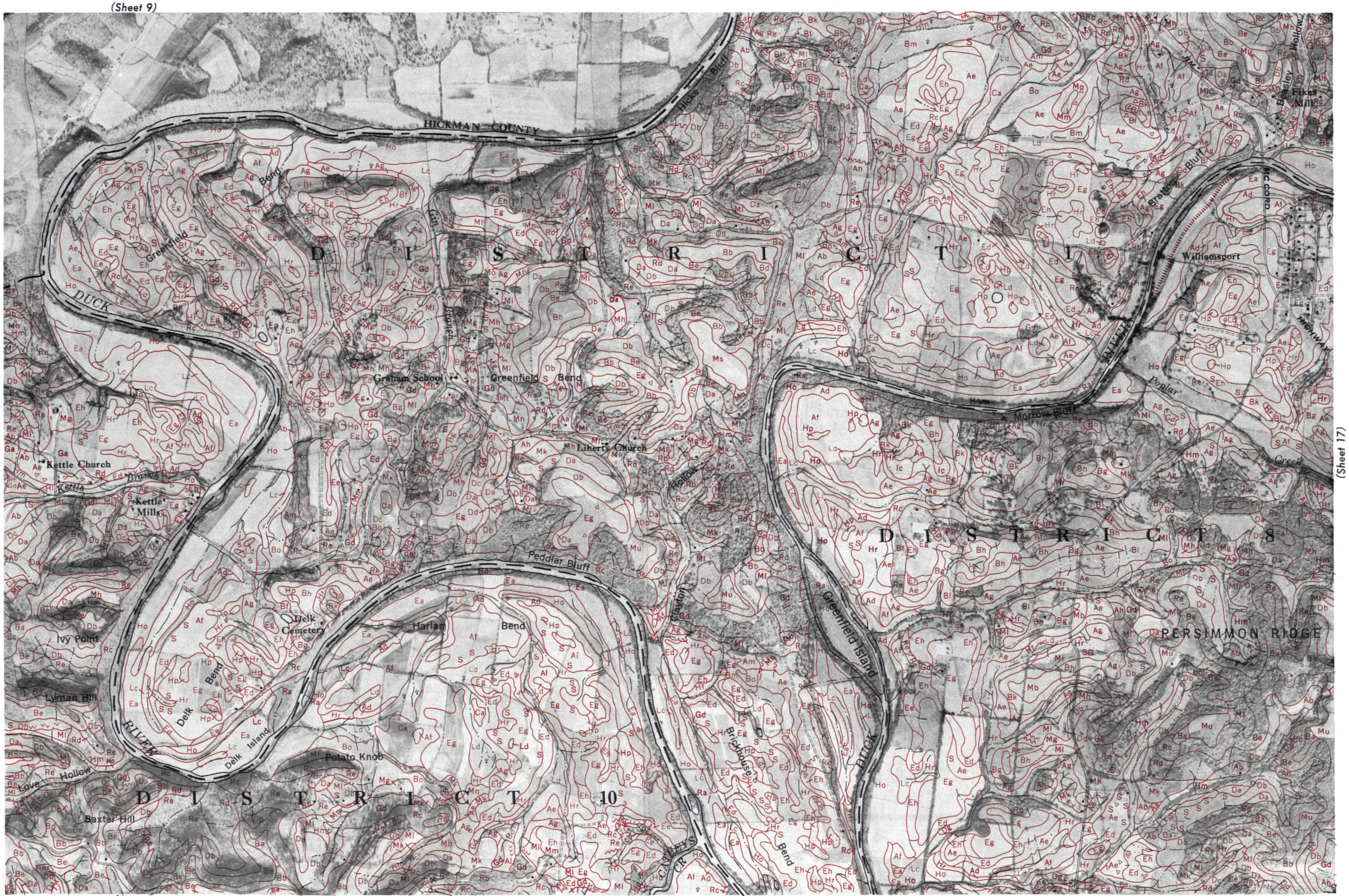

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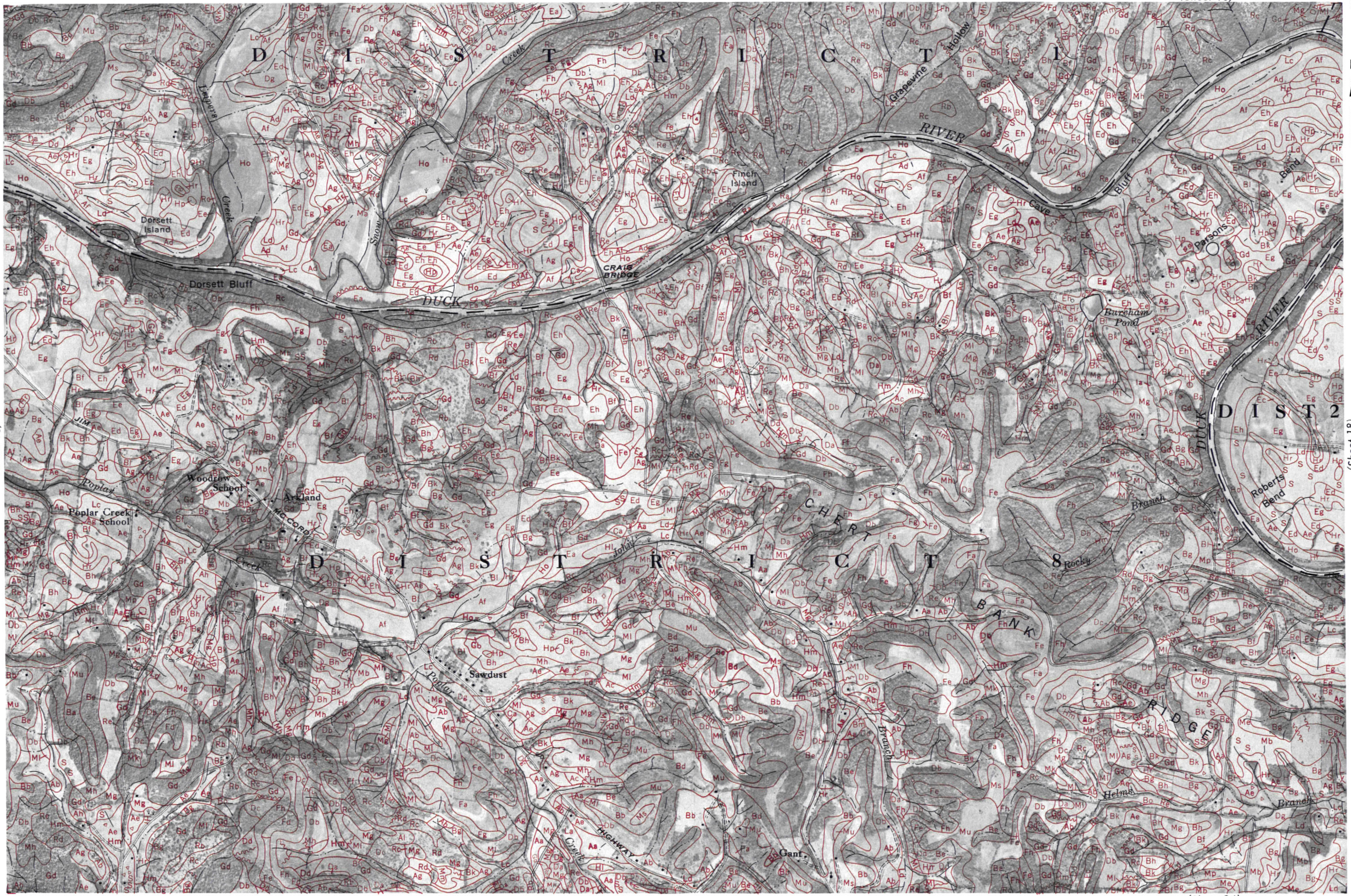

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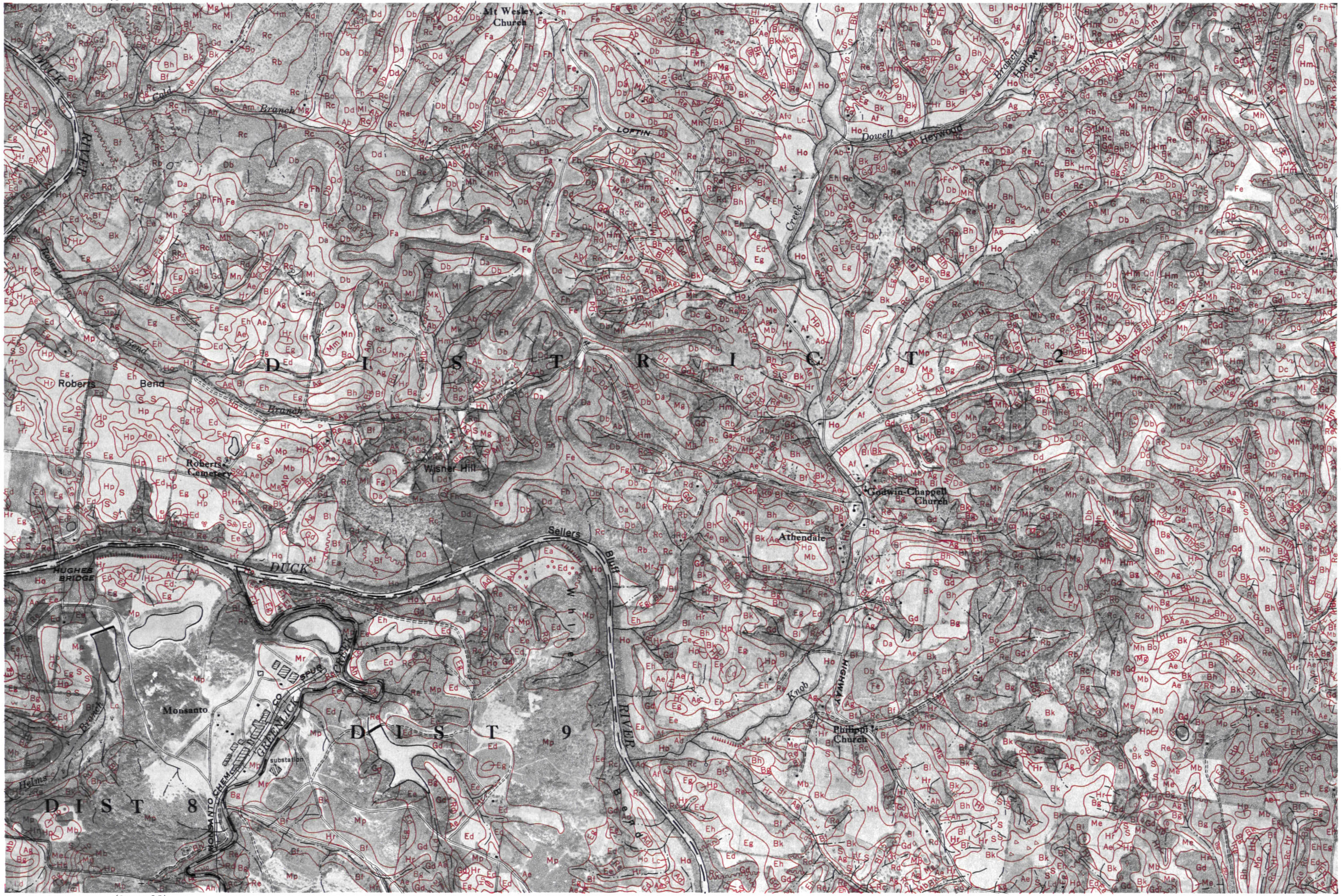

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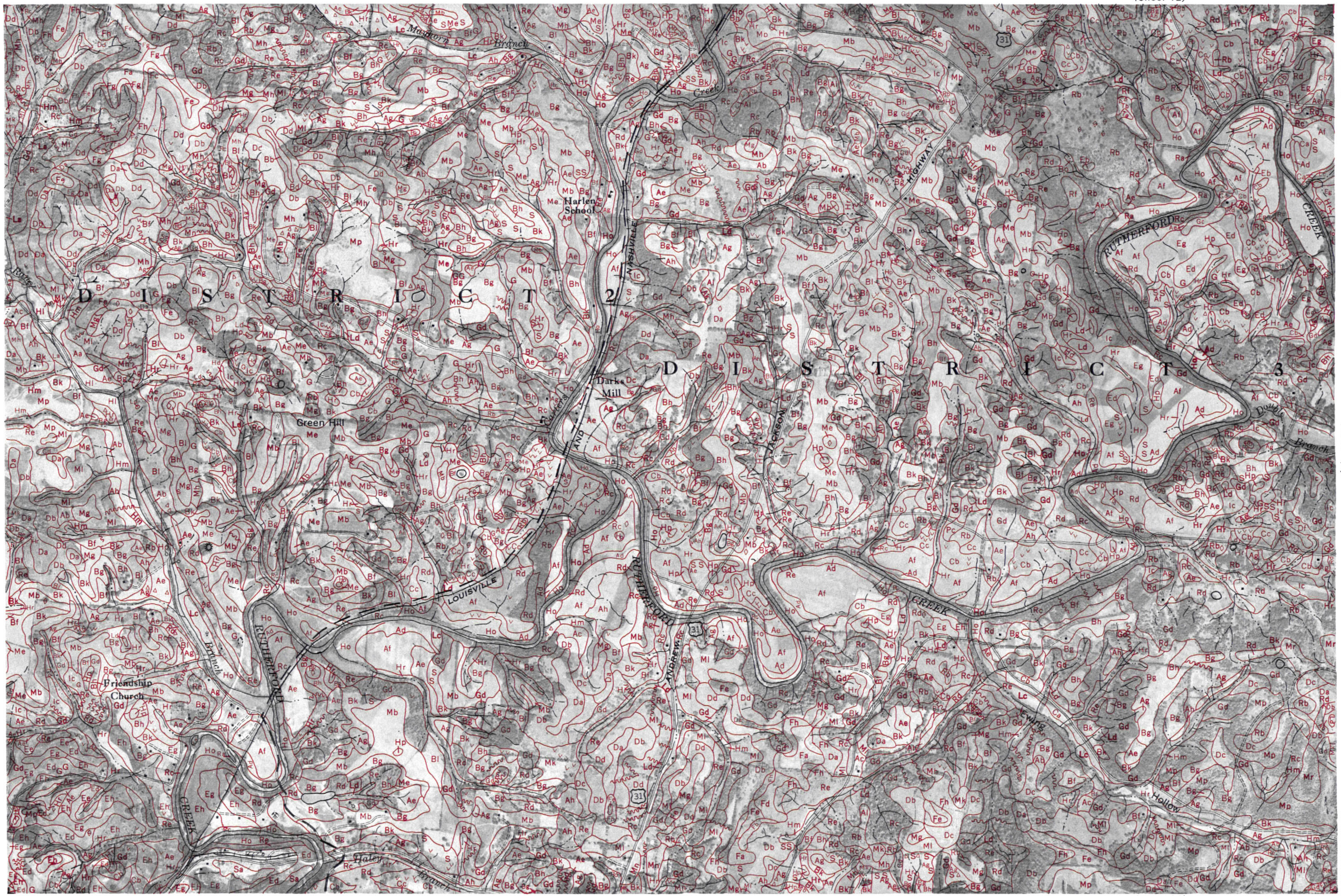

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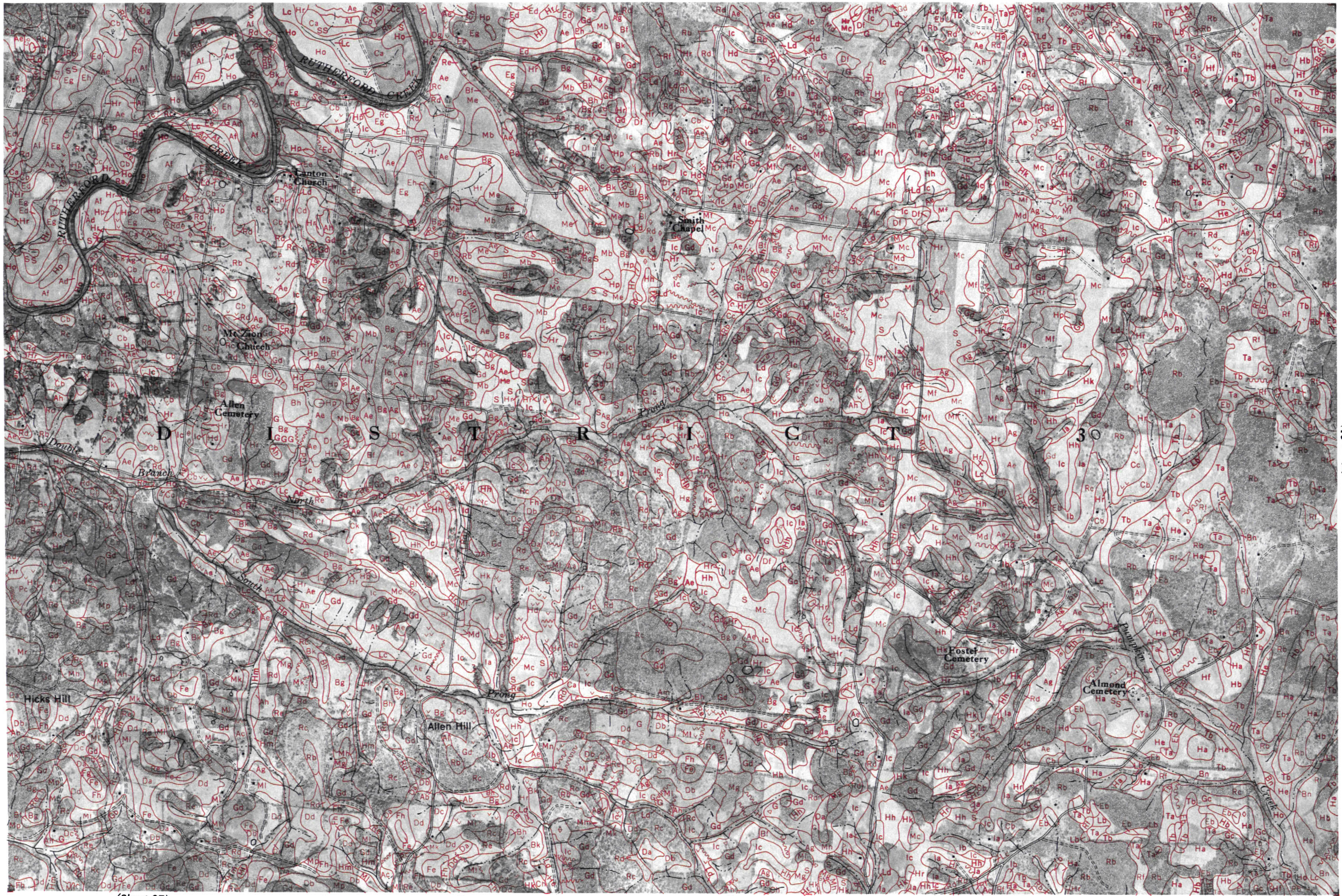

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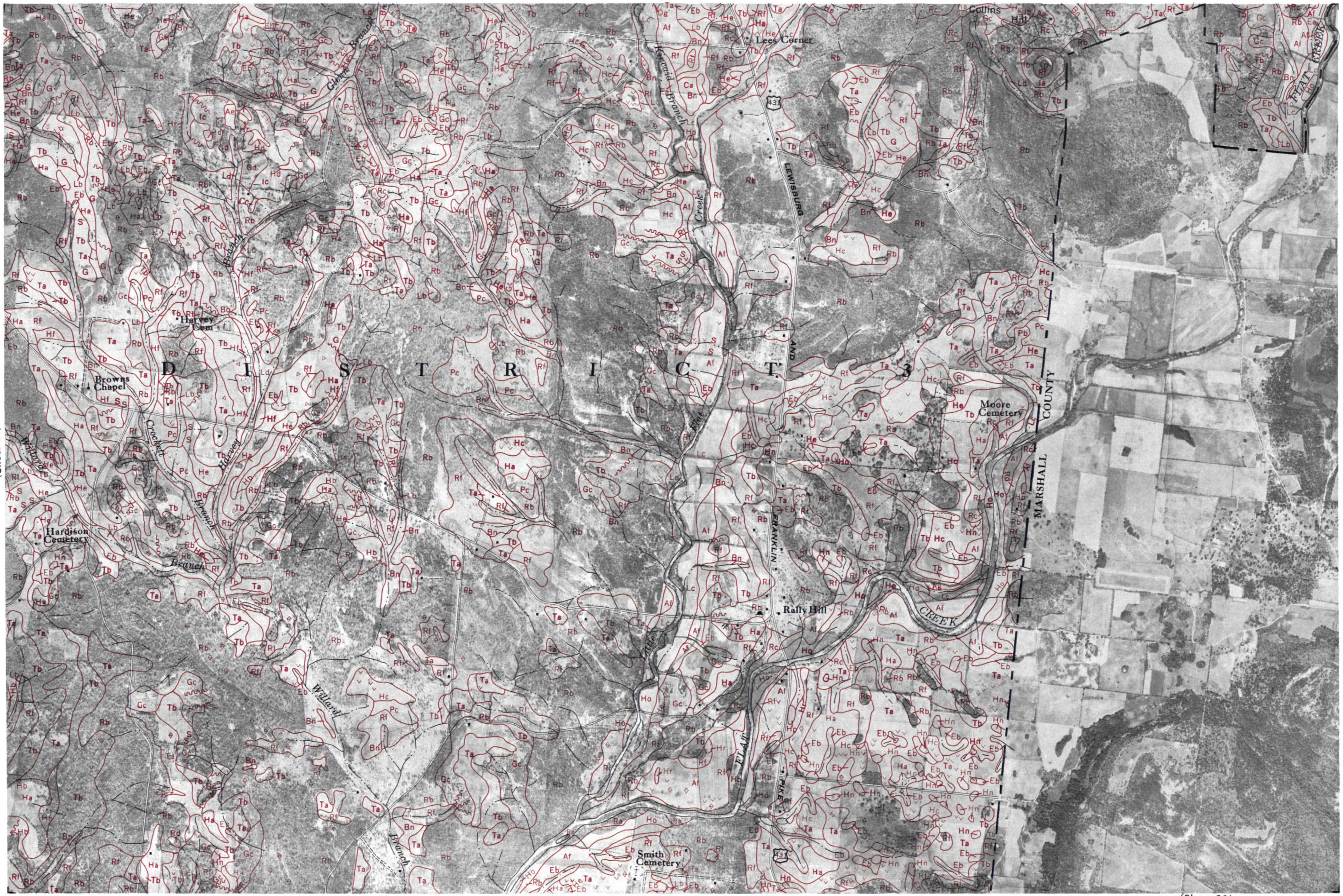

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MAURY COUNTY, TENNESSEE

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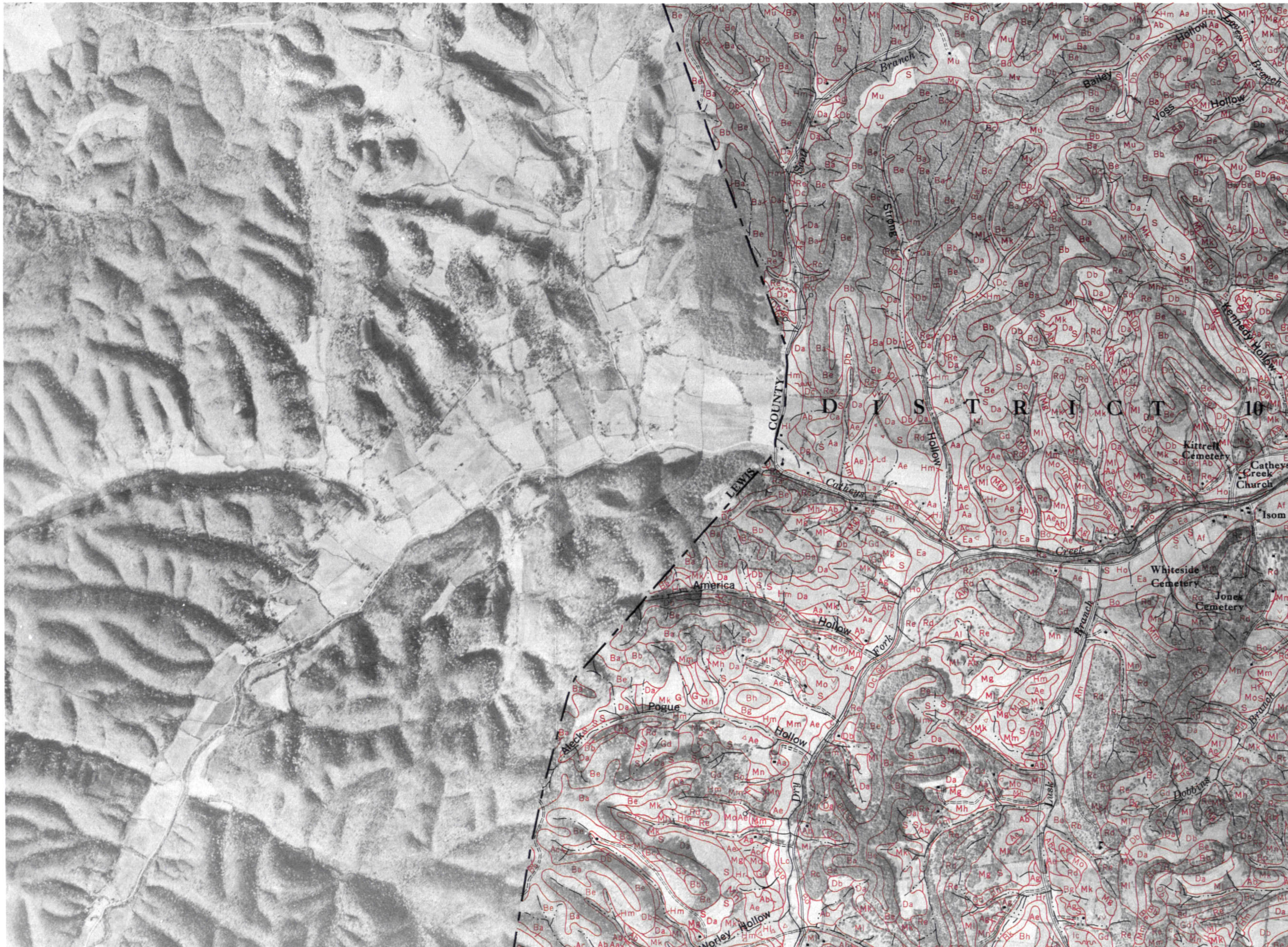

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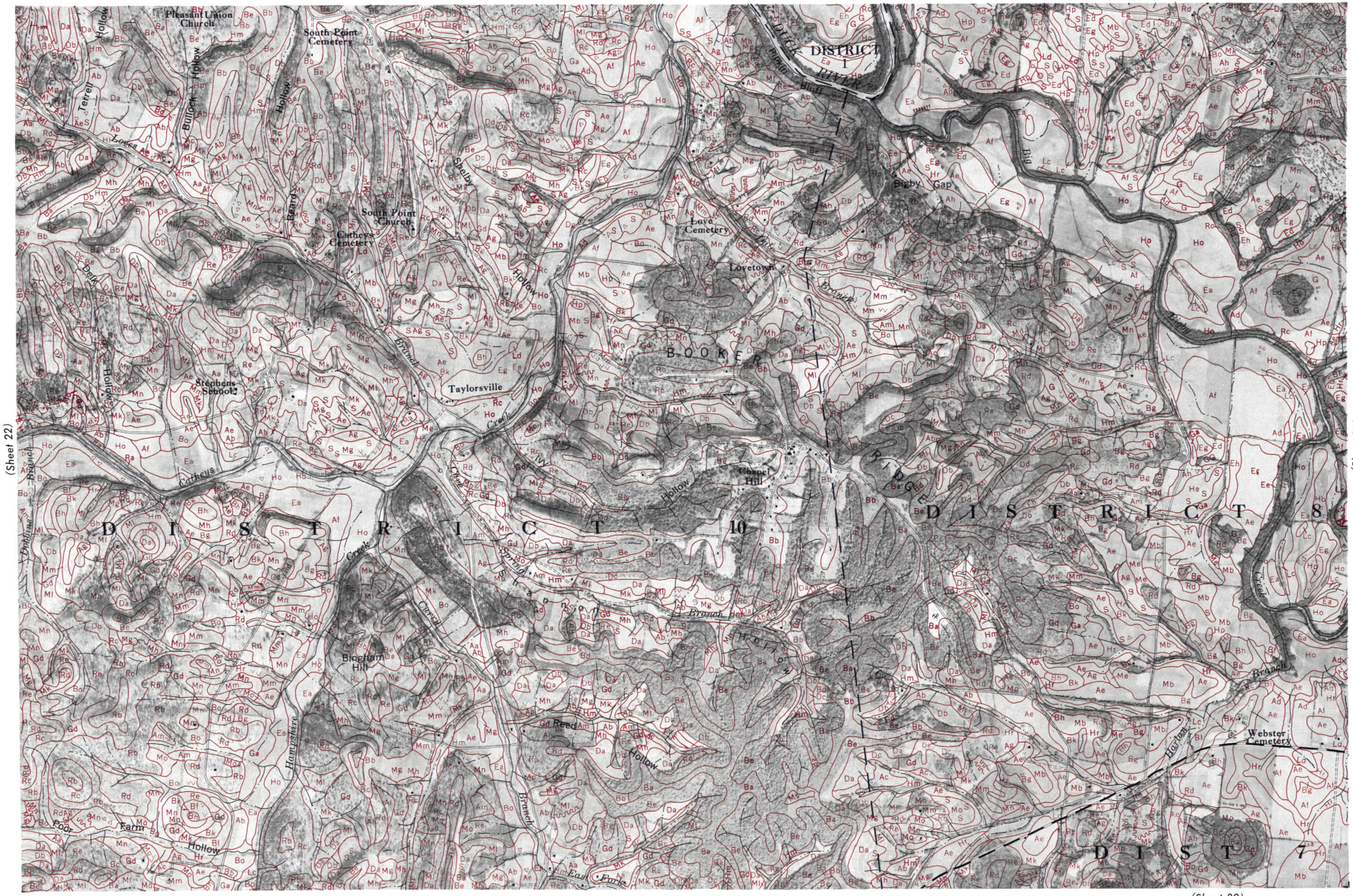

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MAURY COUNTY, TENNESSEE

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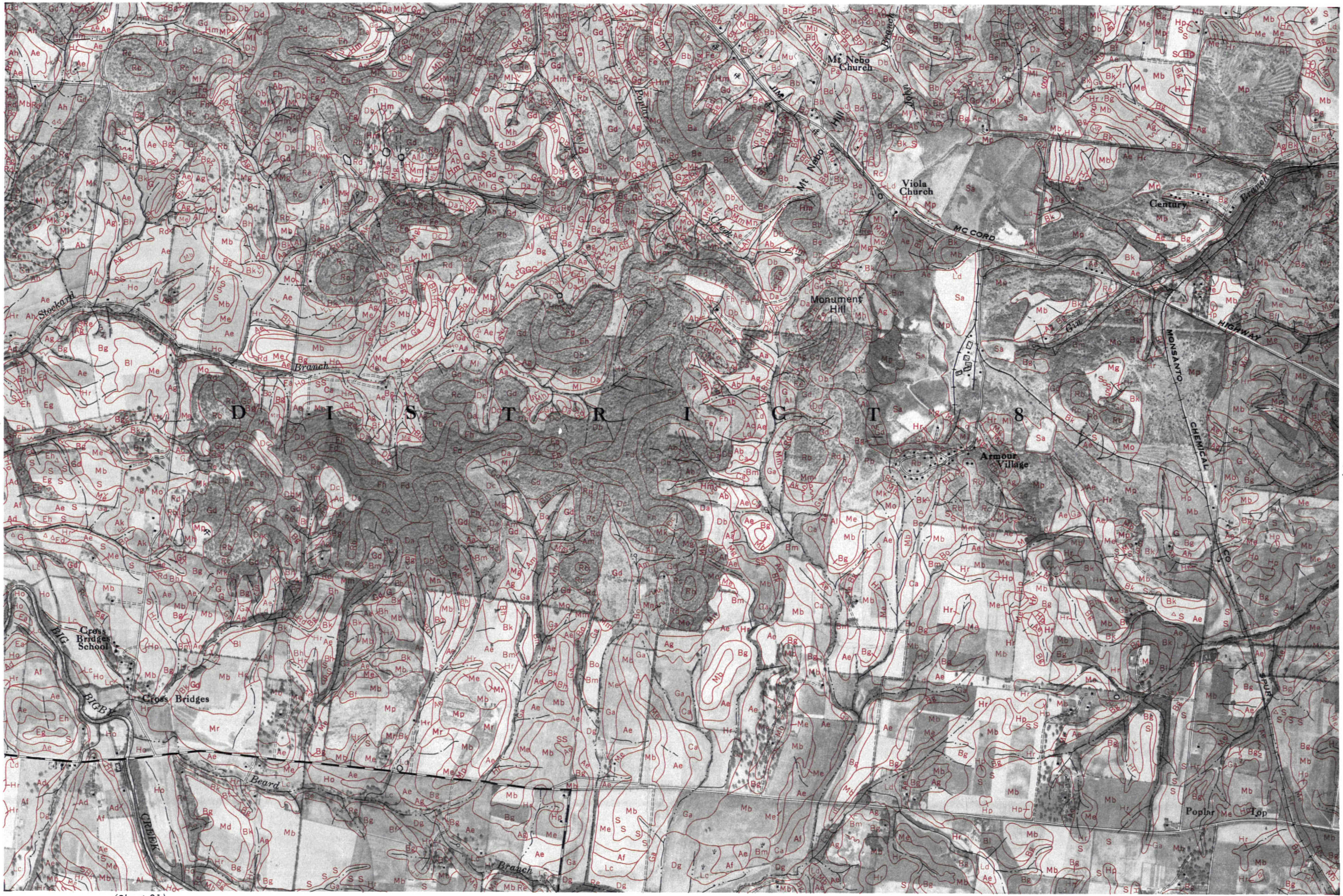

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(Sheet 26)

(Sheet 32)

0 ½ Mile Scale 1:20 000 0 5000 Feet

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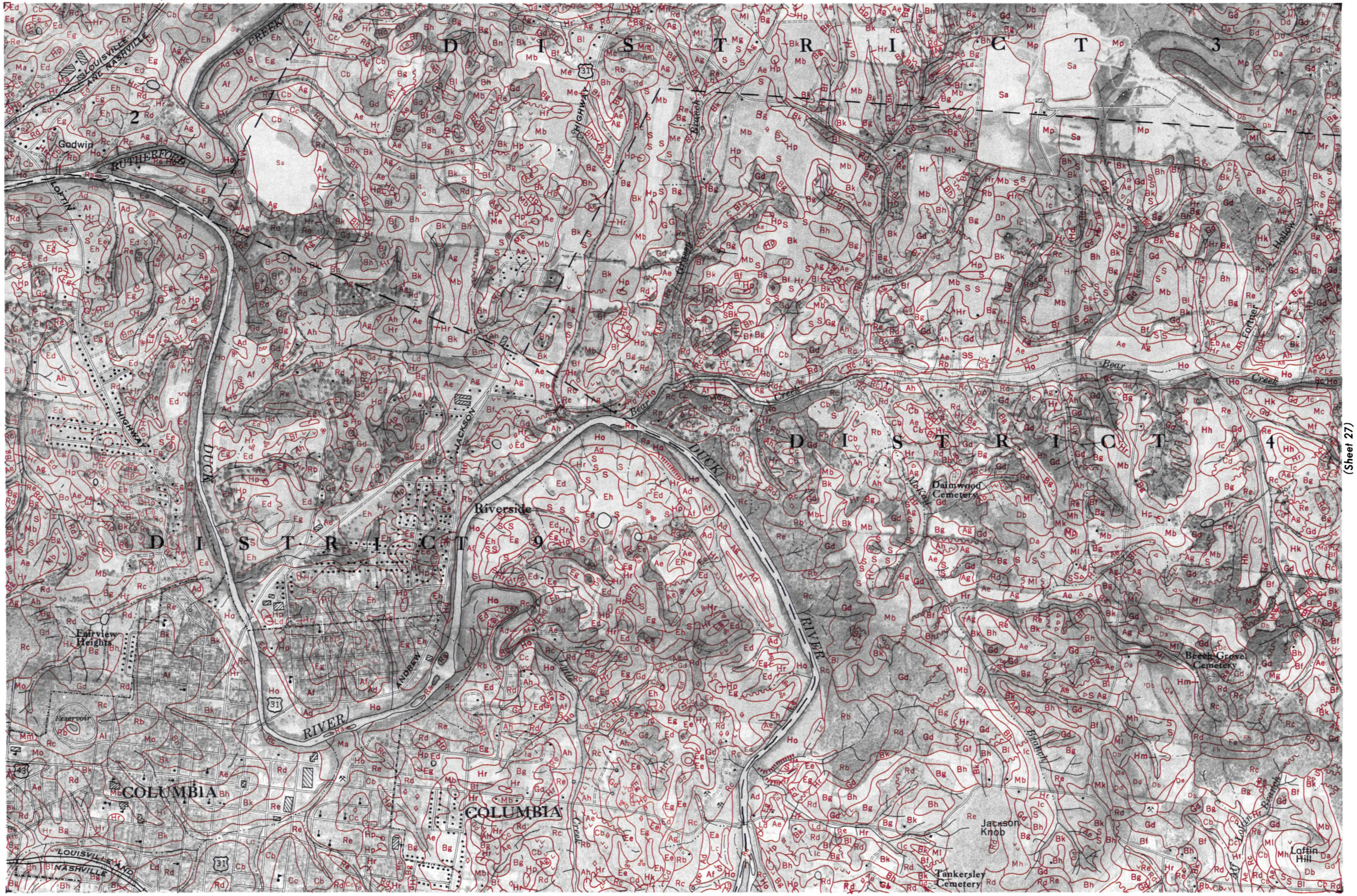
(Sheet 19)

(Sheet 25)



(Sheet 27)

(Sheet 33)

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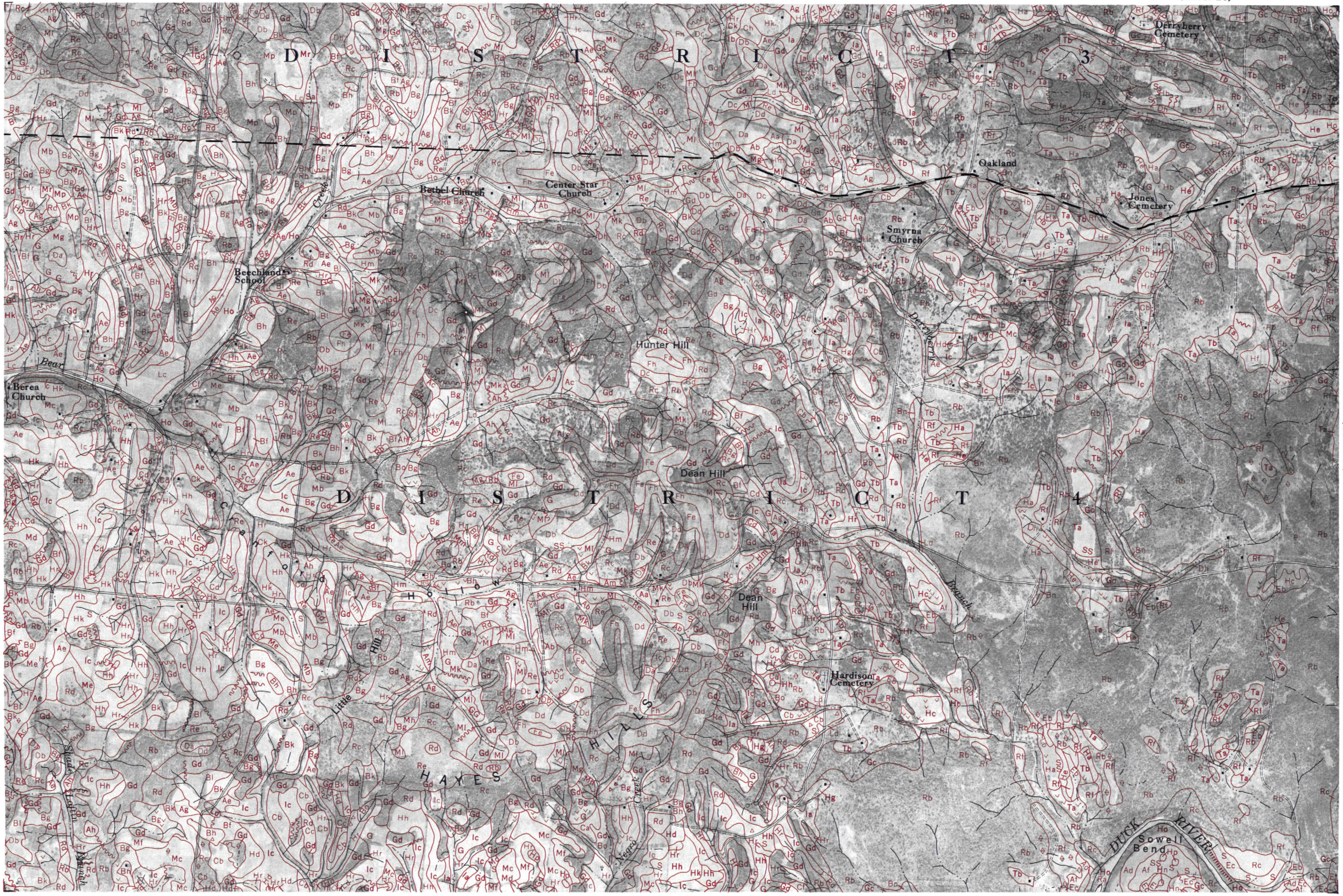
(Sheet 26)



(Sheet 28)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(Sheet 34)

(Sheet 21)

(Sheet 27)

(Sheet 35)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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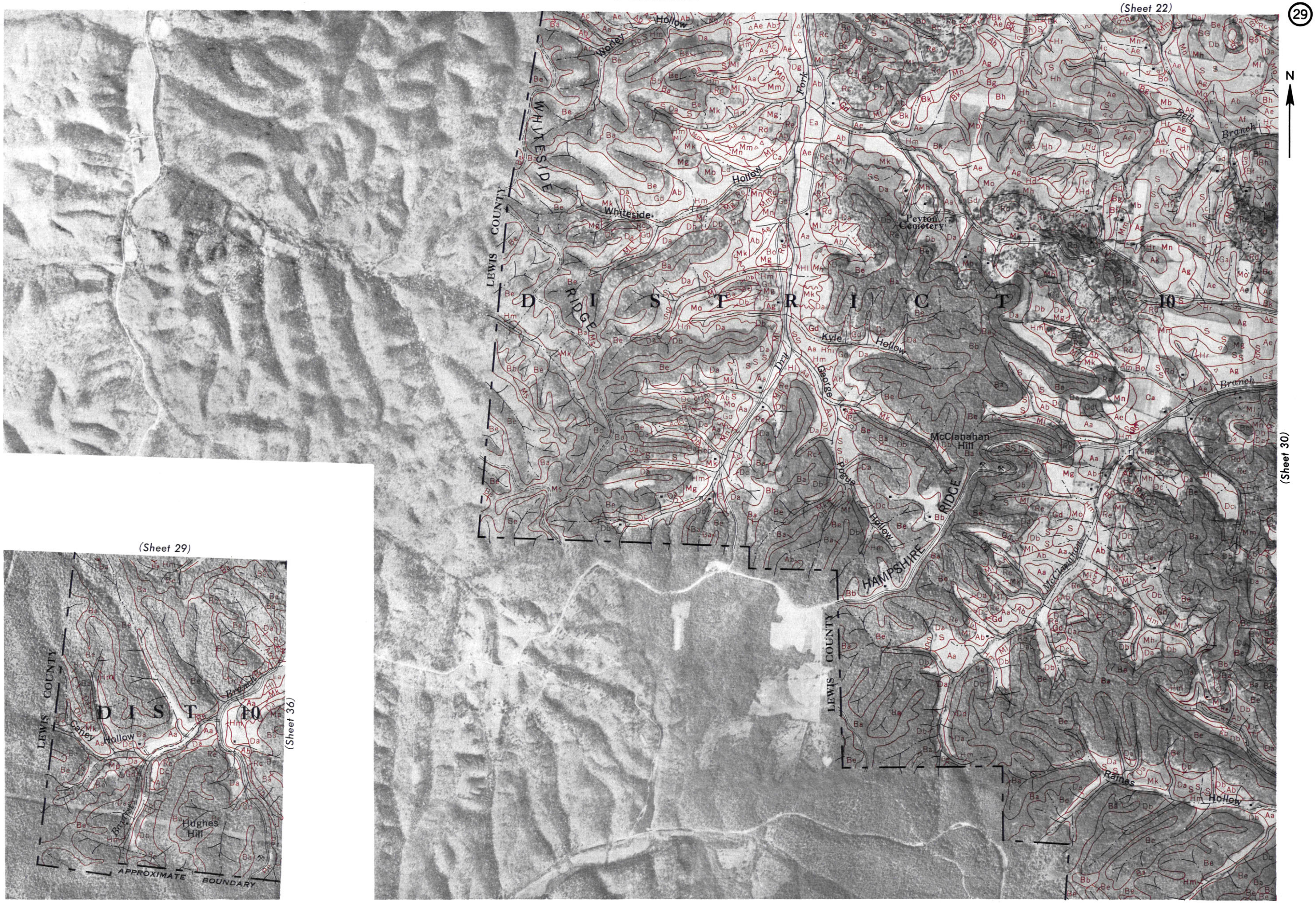

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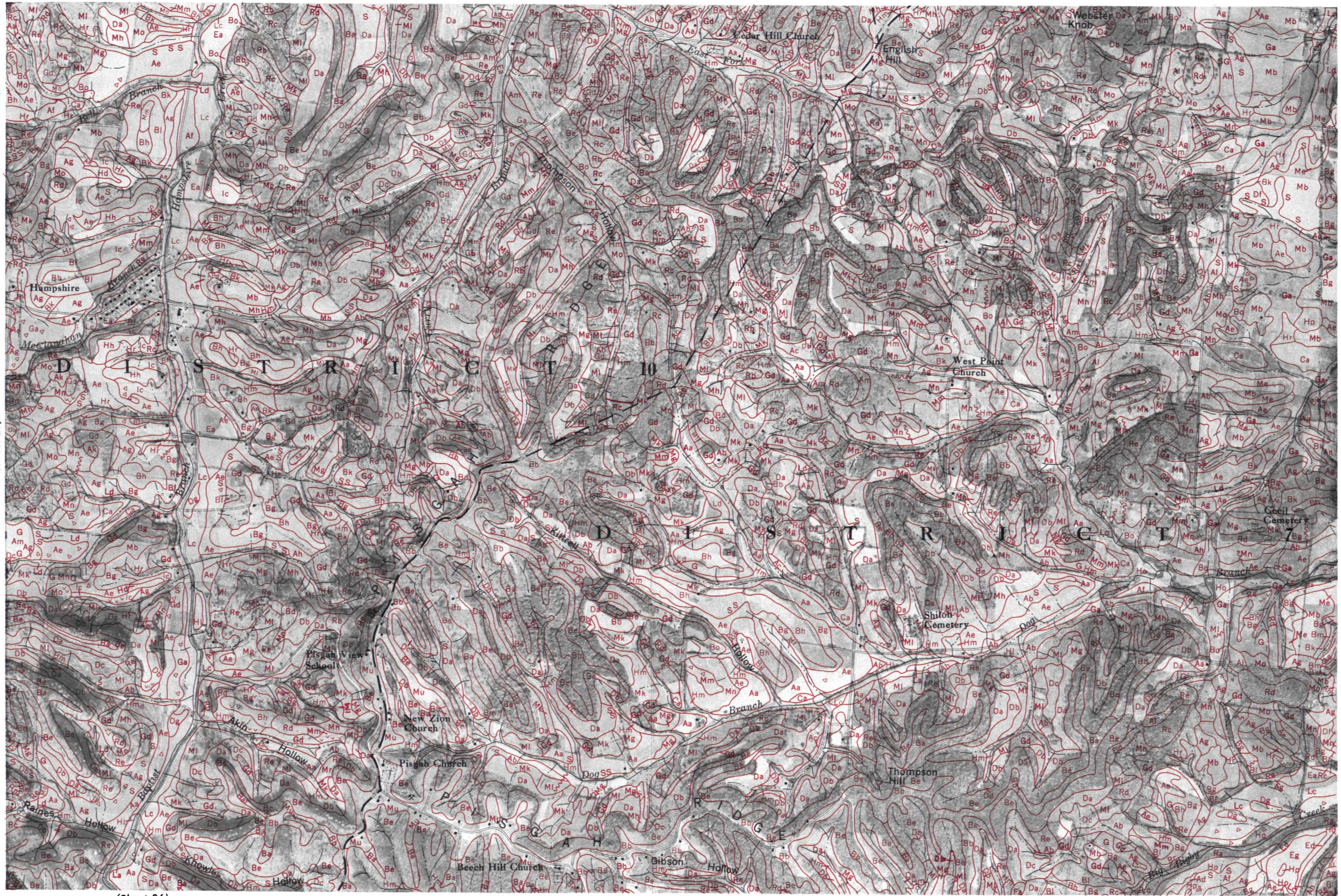

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(Sheet 36)

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(Sheet 24)

(Sheet 30)

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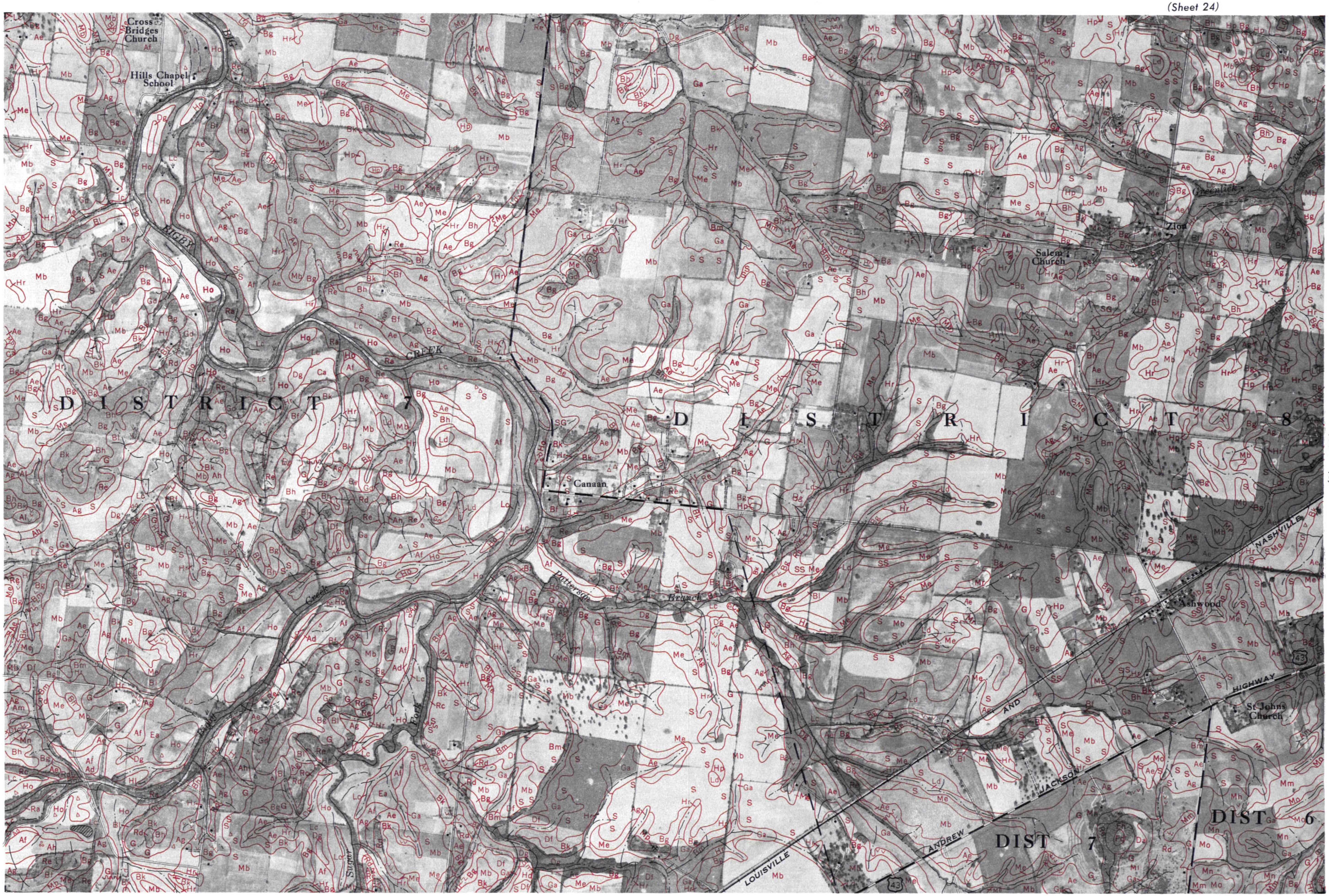

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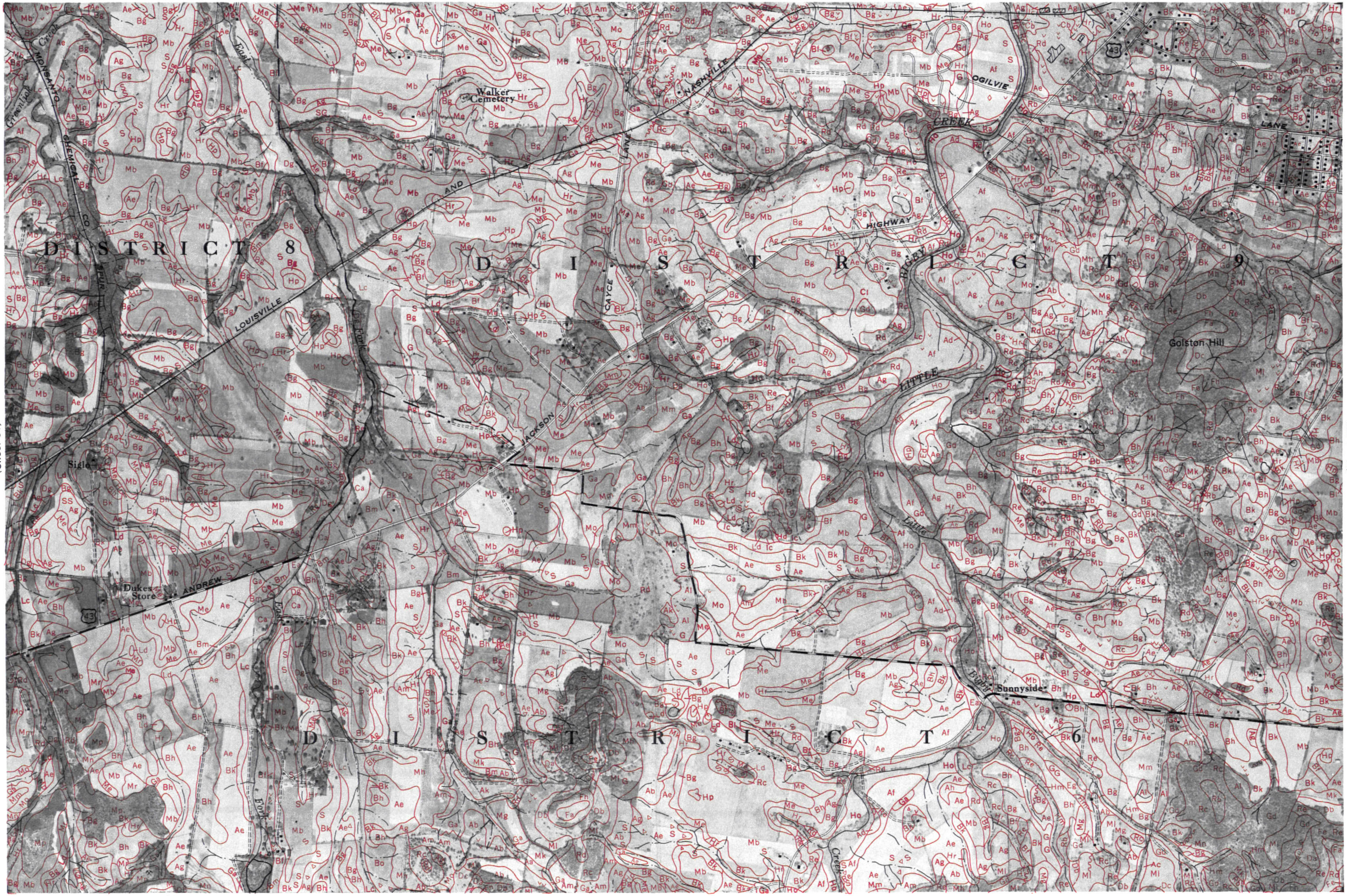
0 ½ 1 Mile Scale 1:20000 0 5000 Feet

(Sheet 37)

MAURY COUNTY, TENNESSEE

(Sheet 25)

(Sheet 31)



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(Sheet 38)

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

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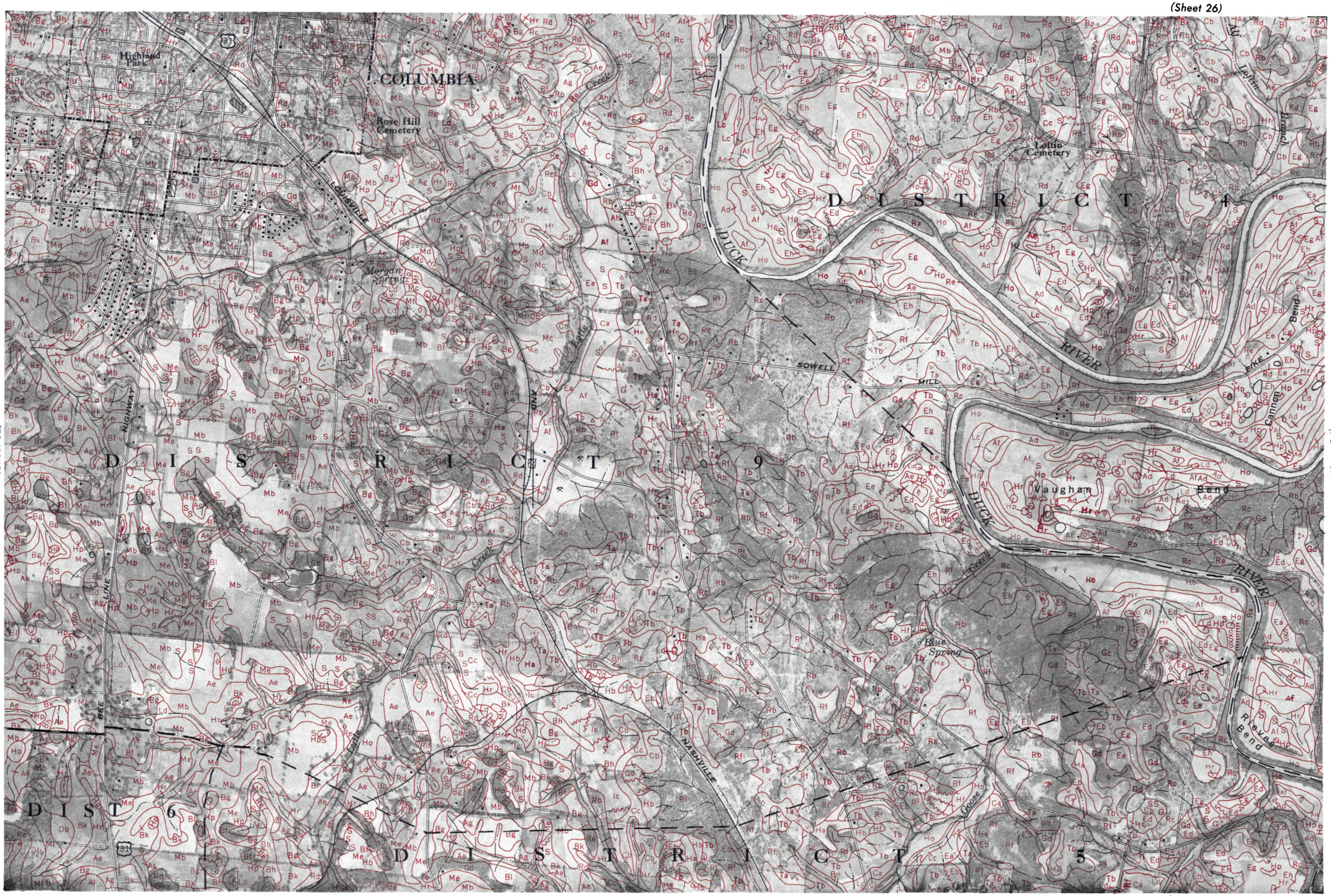

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0 — 1/2 — 1 Mile

Scale 1:20 000

0 — 5000 Feet

(Sheet 27)

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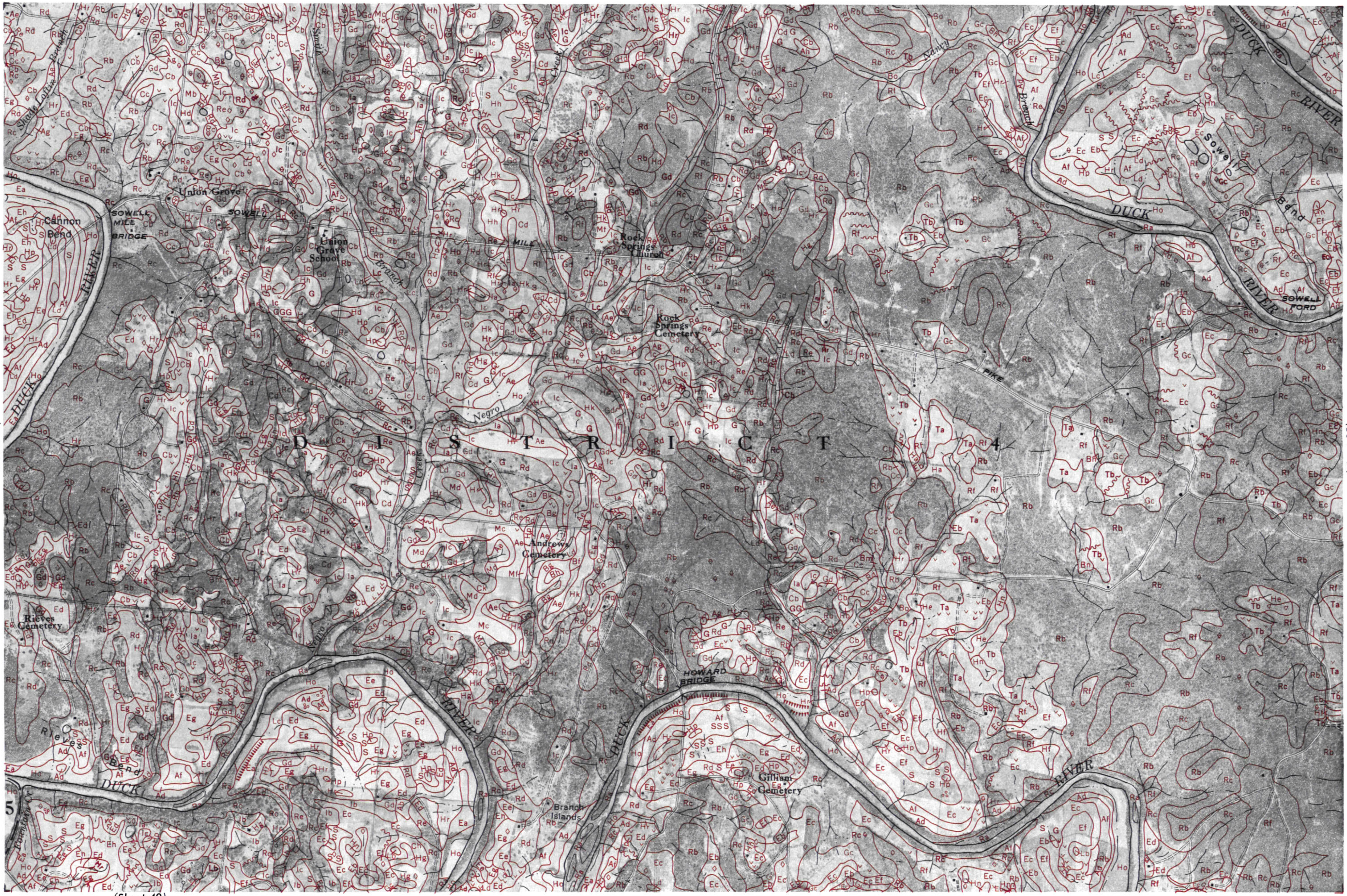
(Sheet 33)



(Sheet 35)

(Sheet 40)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Sheet 28)

N

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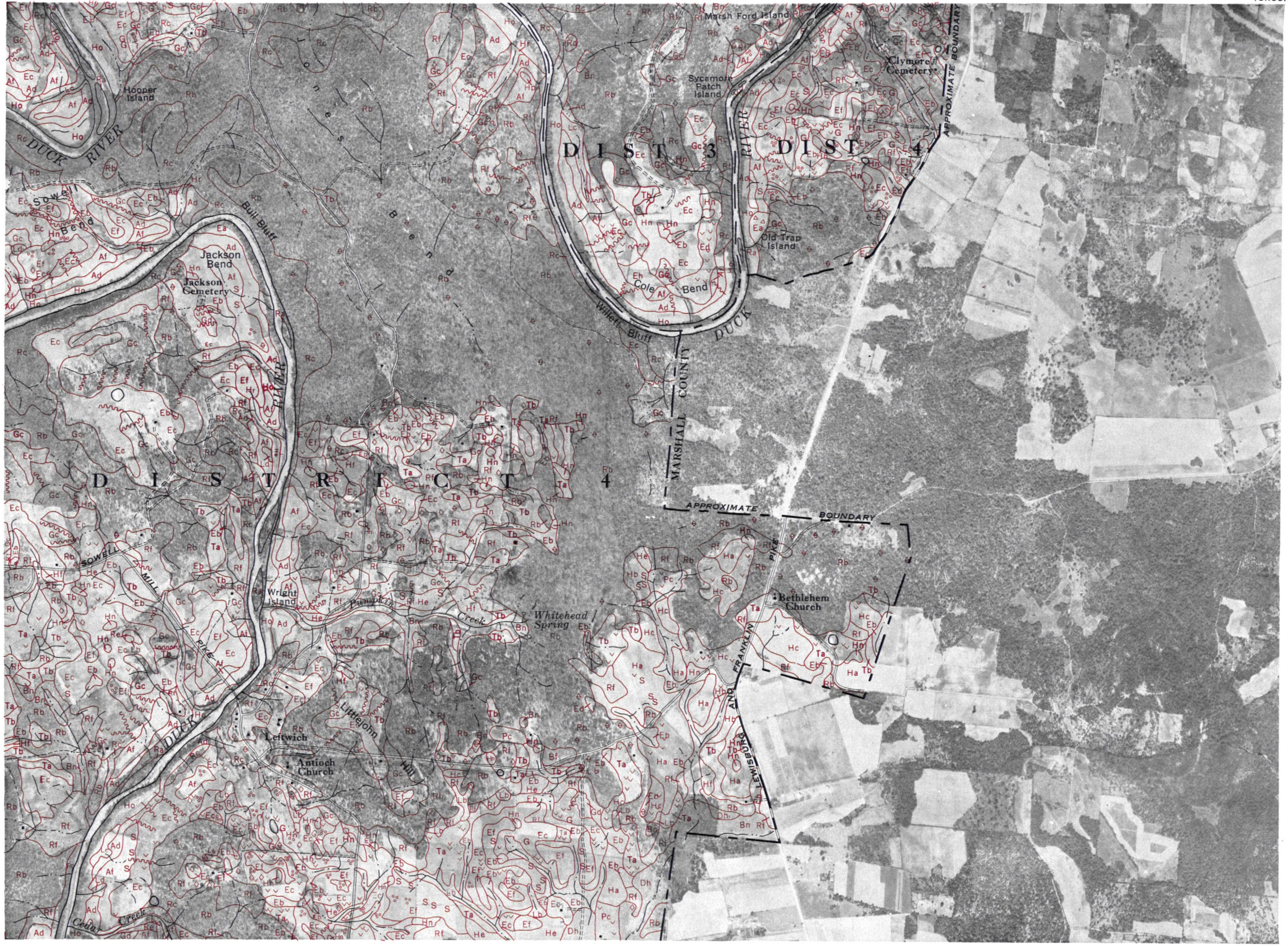
(Sheet 34)



0 1/2 1 Mile Scale 1:20000 0 5000 Feet

(Sheet 41)

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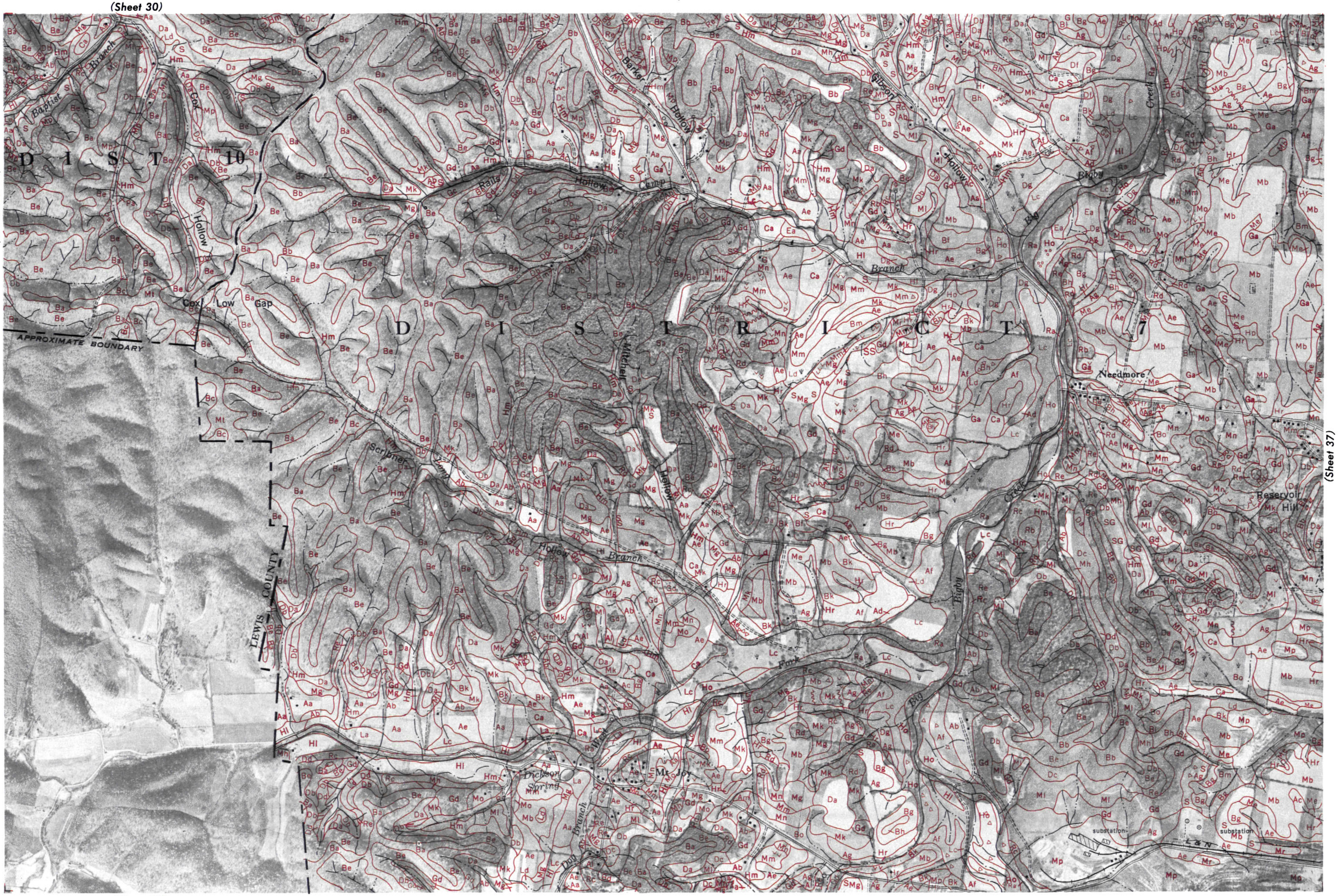


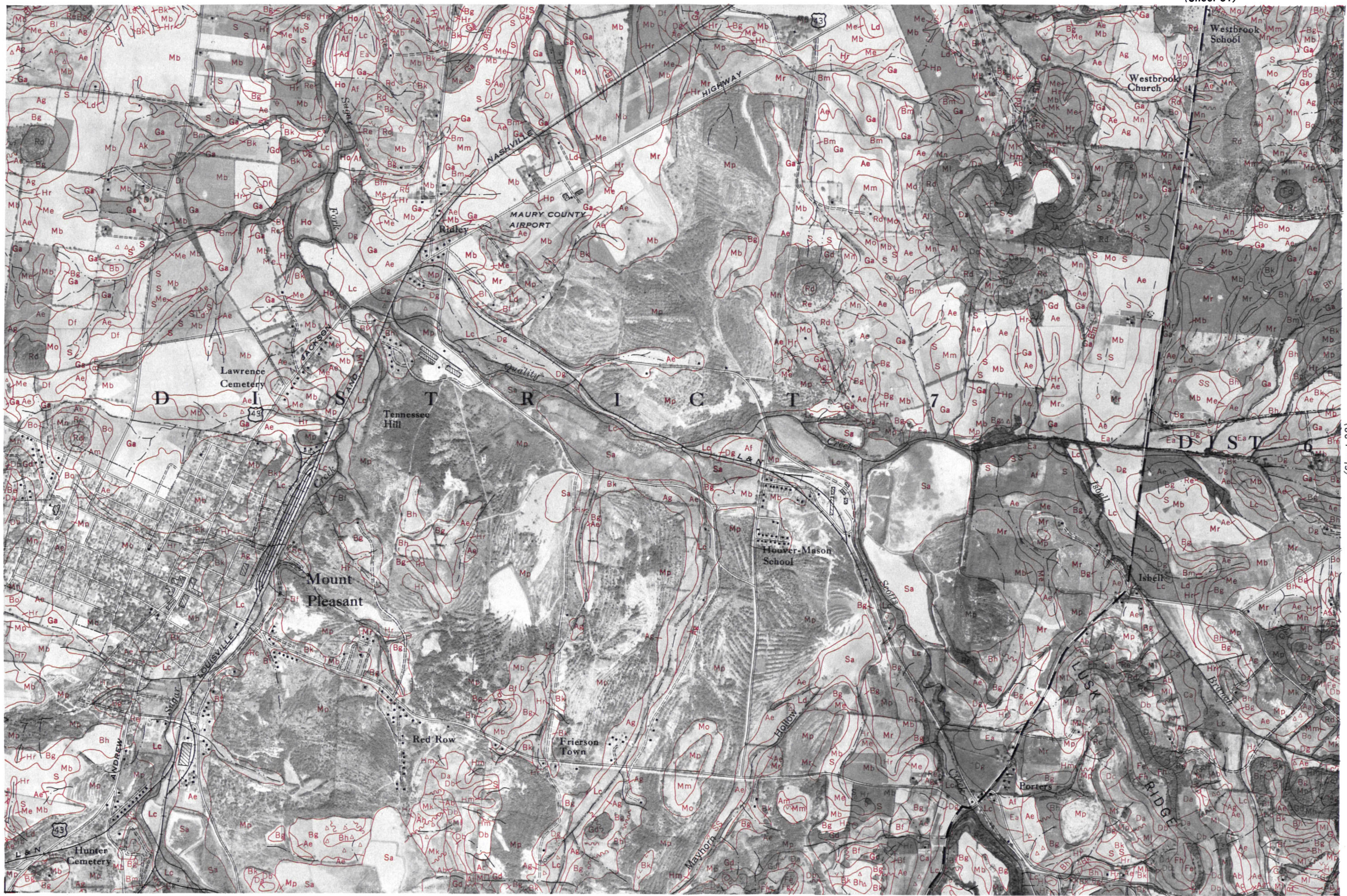
(Sheet 37)

(Sheet 42)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

MAURY COUNTY, TENNESSEE

(Sheet 31)



(Sheet 36)

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0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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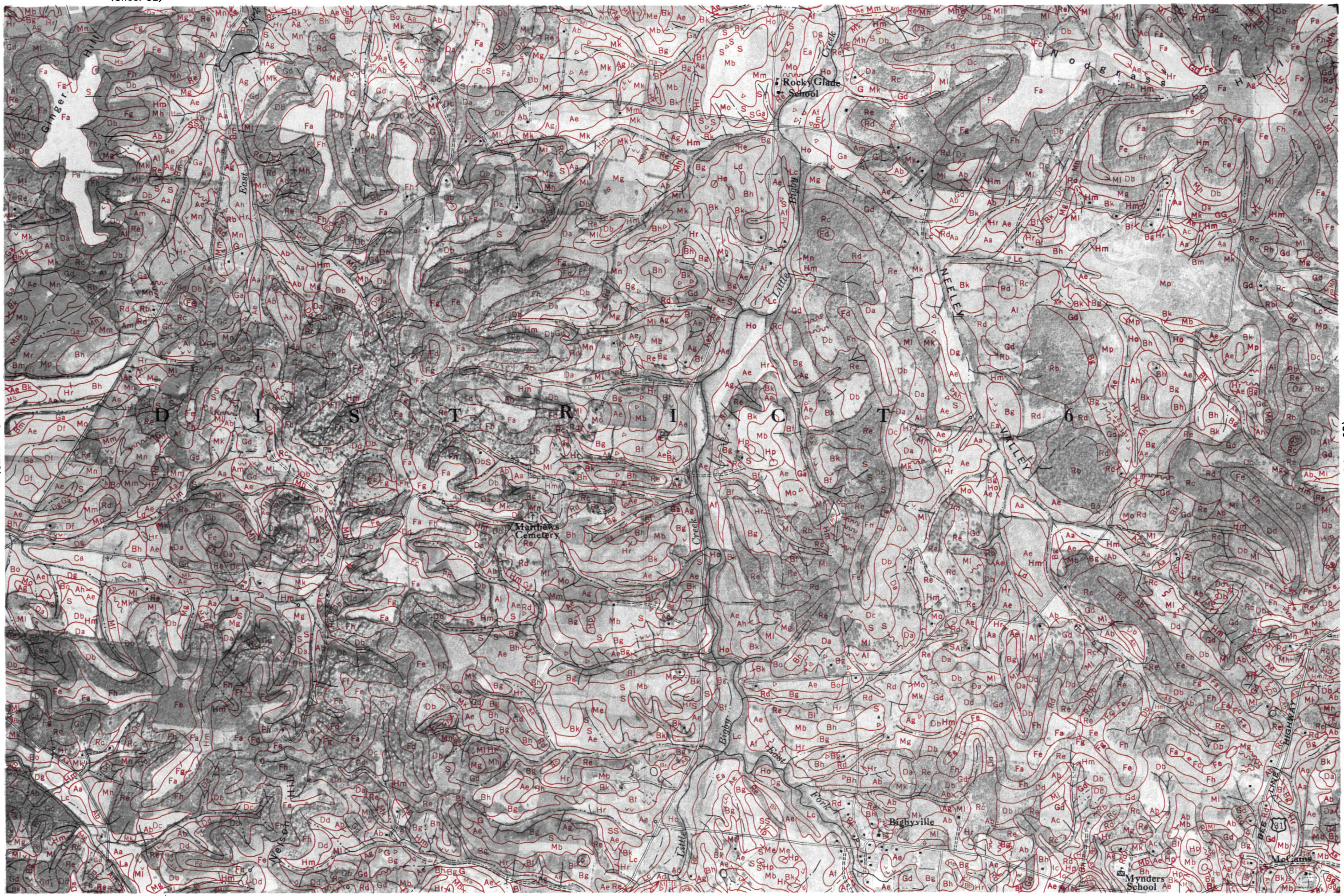

(Sheet 39)

(Sheet 44)

0 1/2 1 Mile Scale 1:20000 0 5000 Feet

(Sheet 33)

(Sheet 38)

(Sheet 40)

(Sheet 45)

0 1/2 1 Mile Scale 1:20000 0 5000 Feet

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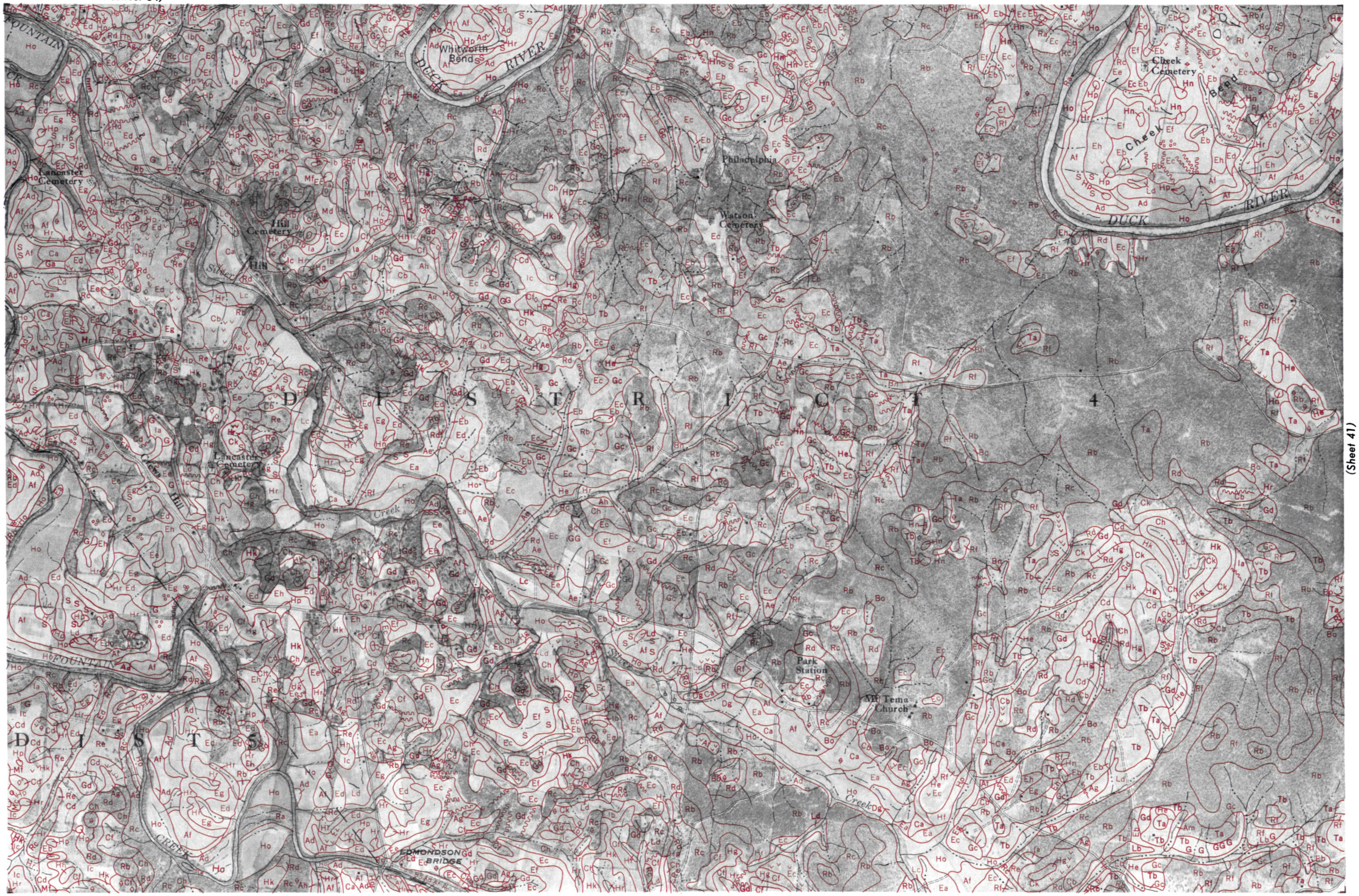

(Sheet 41)

(Sheet 46)

0 1/2 1 Mile Scale 1:20 000 0 5000 Feet

(Sheet 35)

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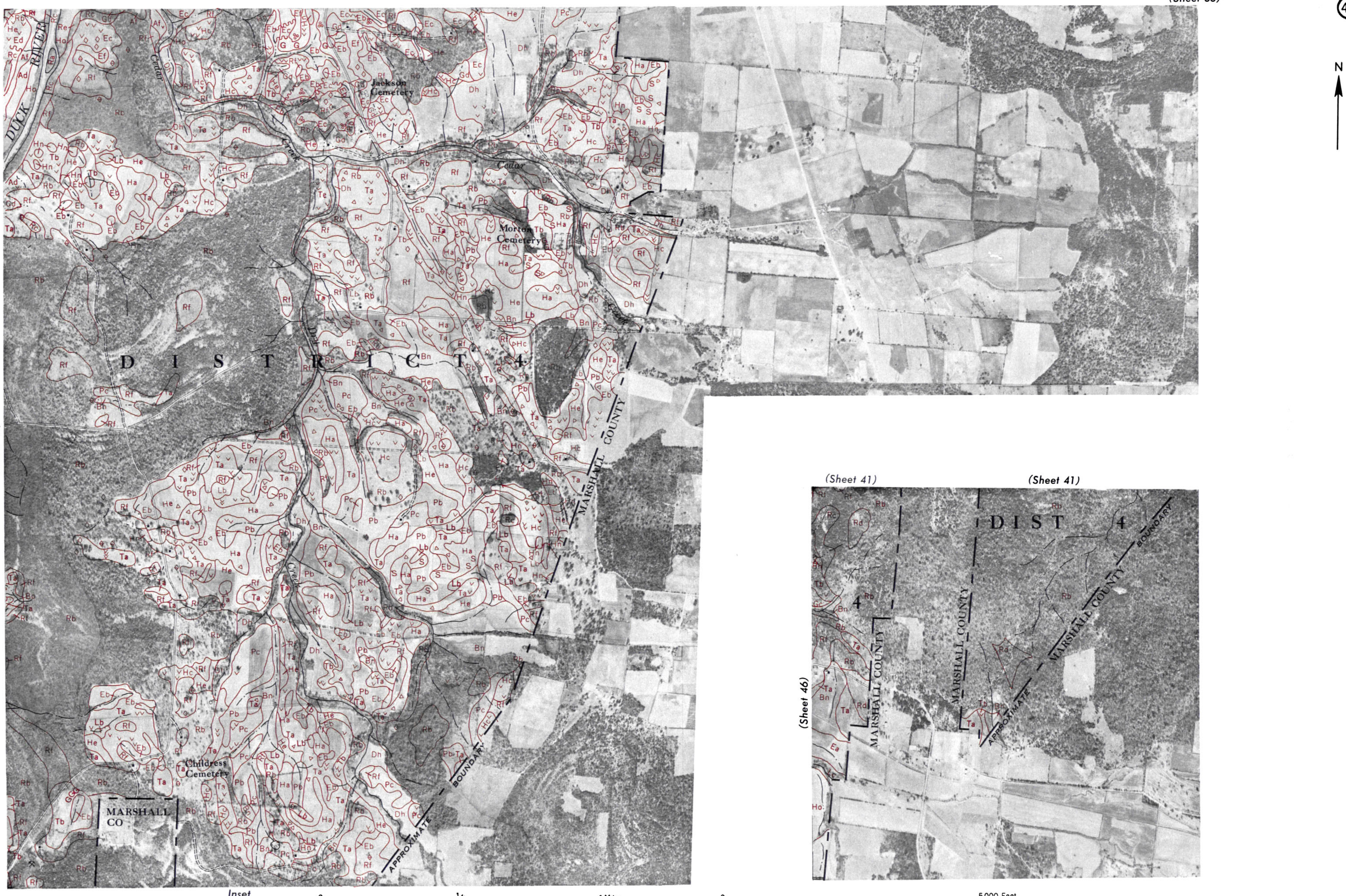


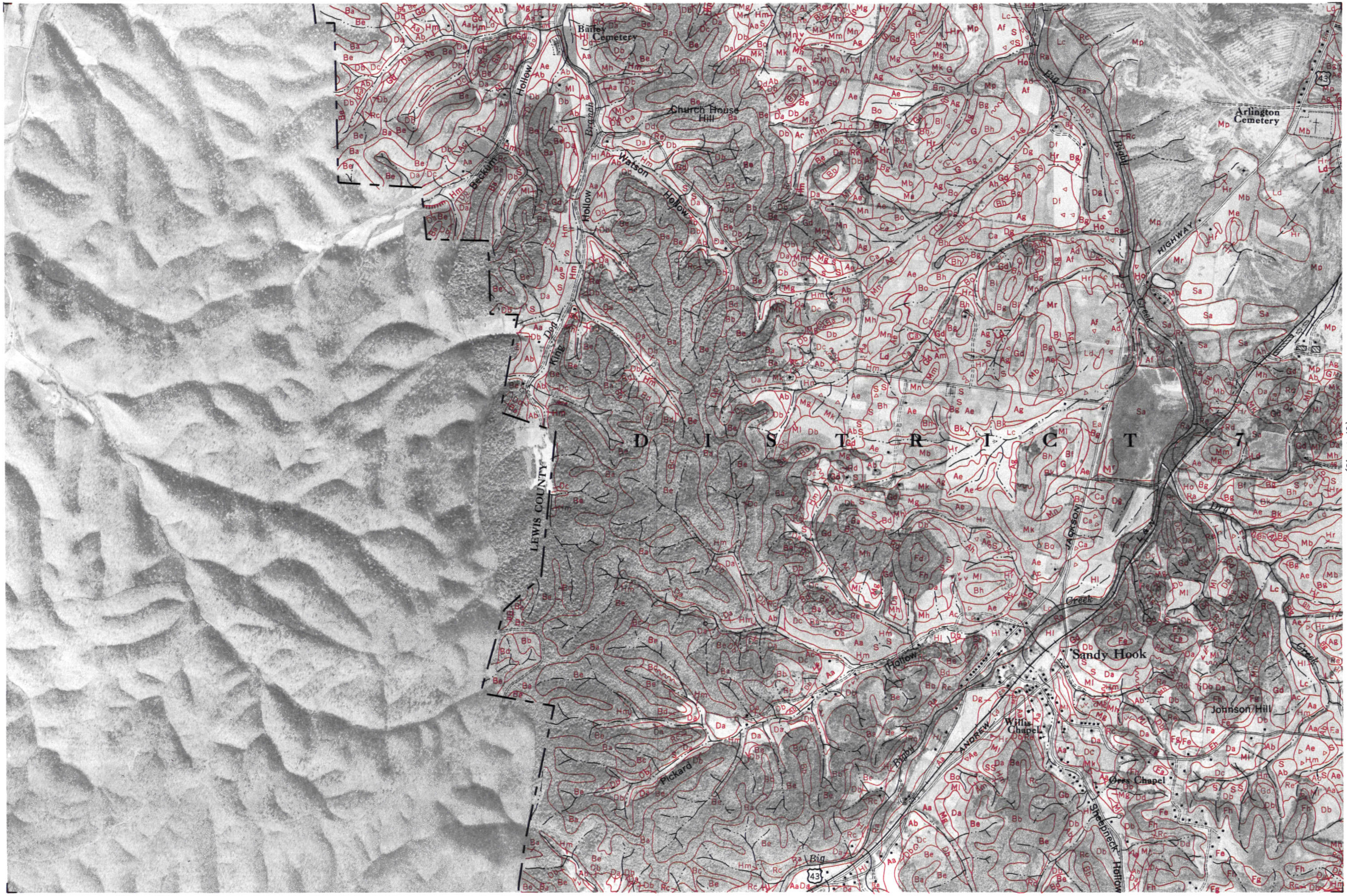
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

MAURY COUNTY, TENNESSEE

(Sheet 36)



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(Sheet 47)

0 1/2 1 Mile Scale 1:20000 0 5000 Feet

(Sheet 37)

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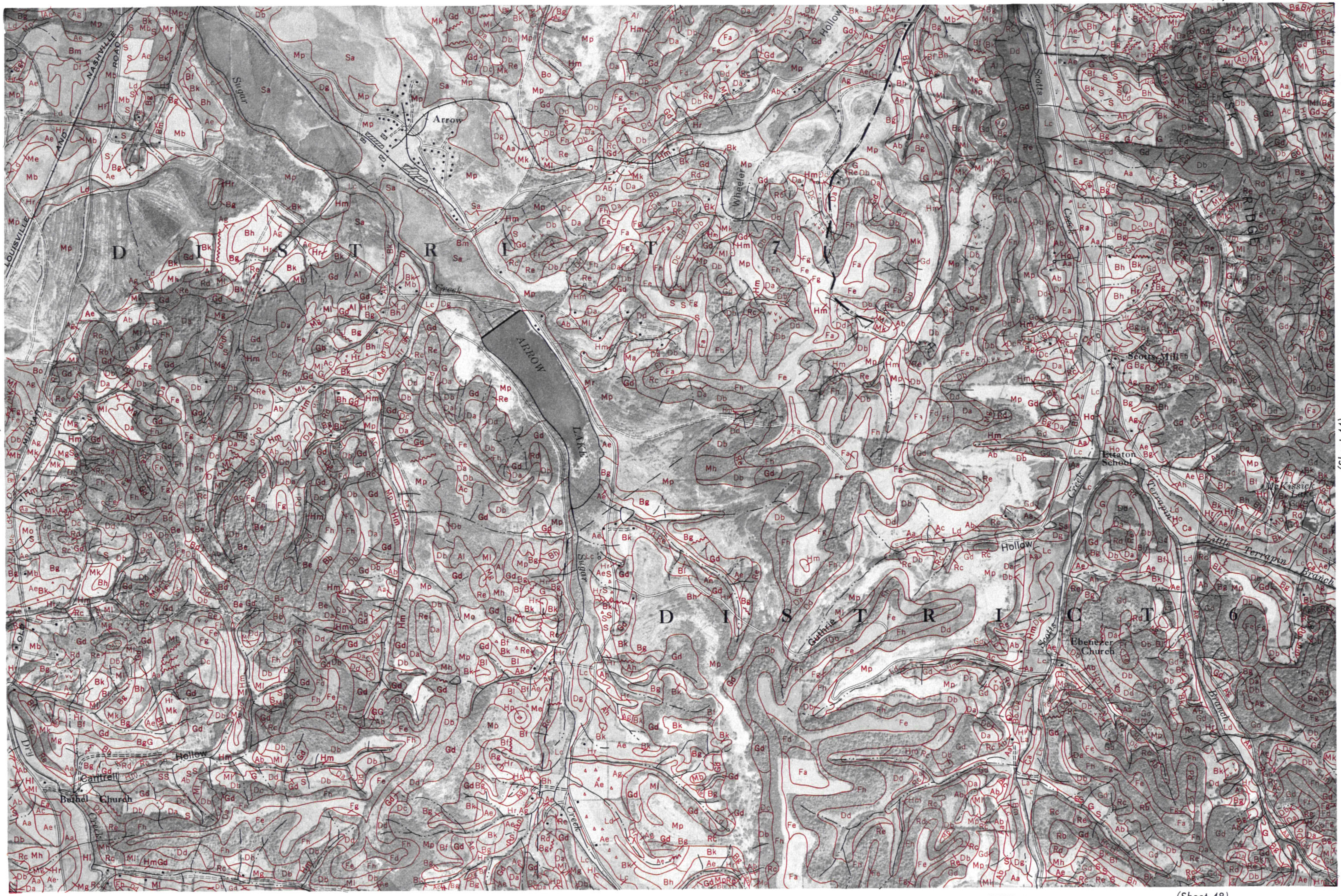

(Sheet 48)

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

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(Sheet 38)

(Sheet 43)

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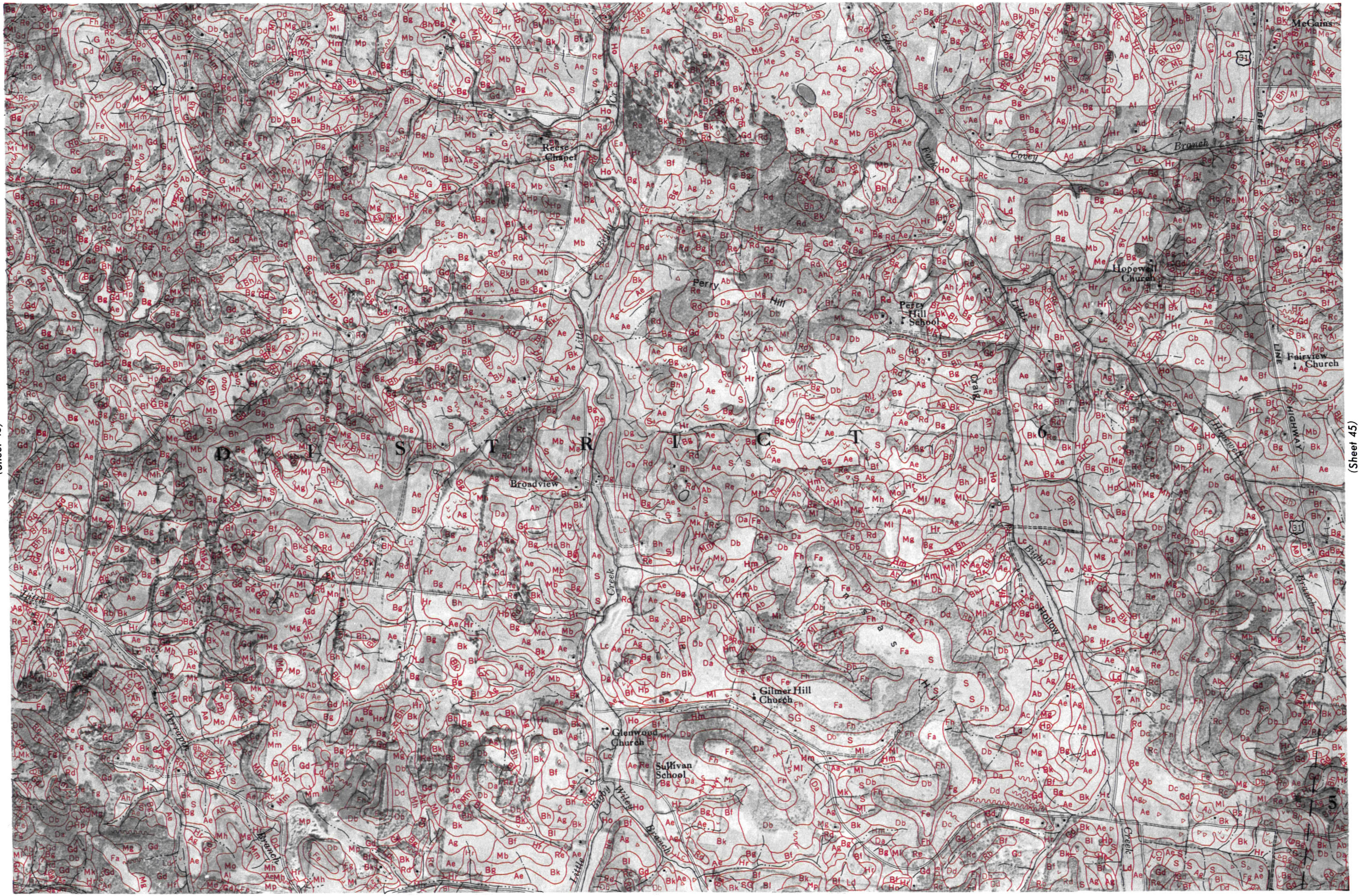
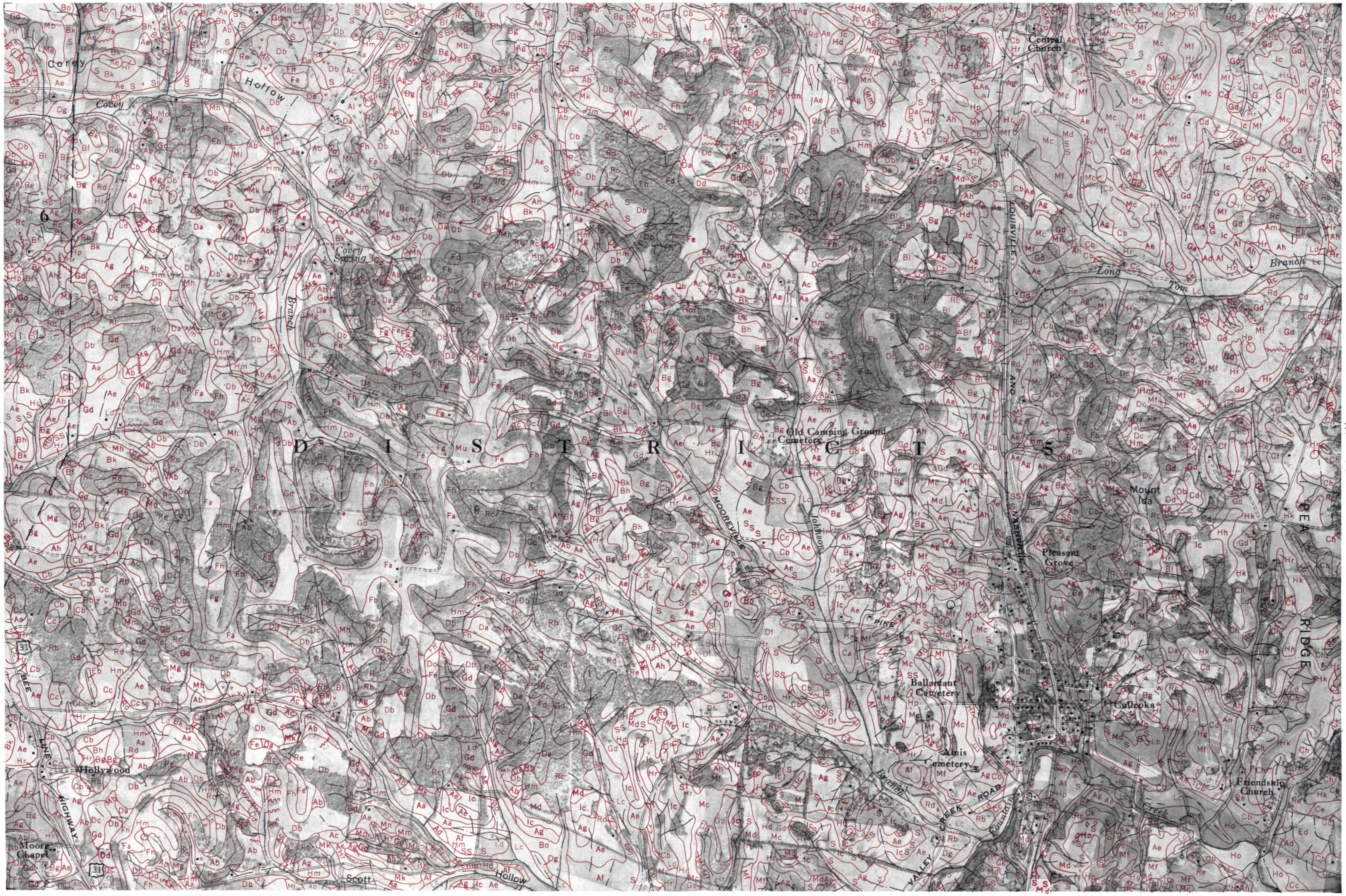


(Sheet 49)

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

(Sheet 39)

(Sheet 44)



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MAURY COUNTY, TENNESSEE

(Sheet 40)

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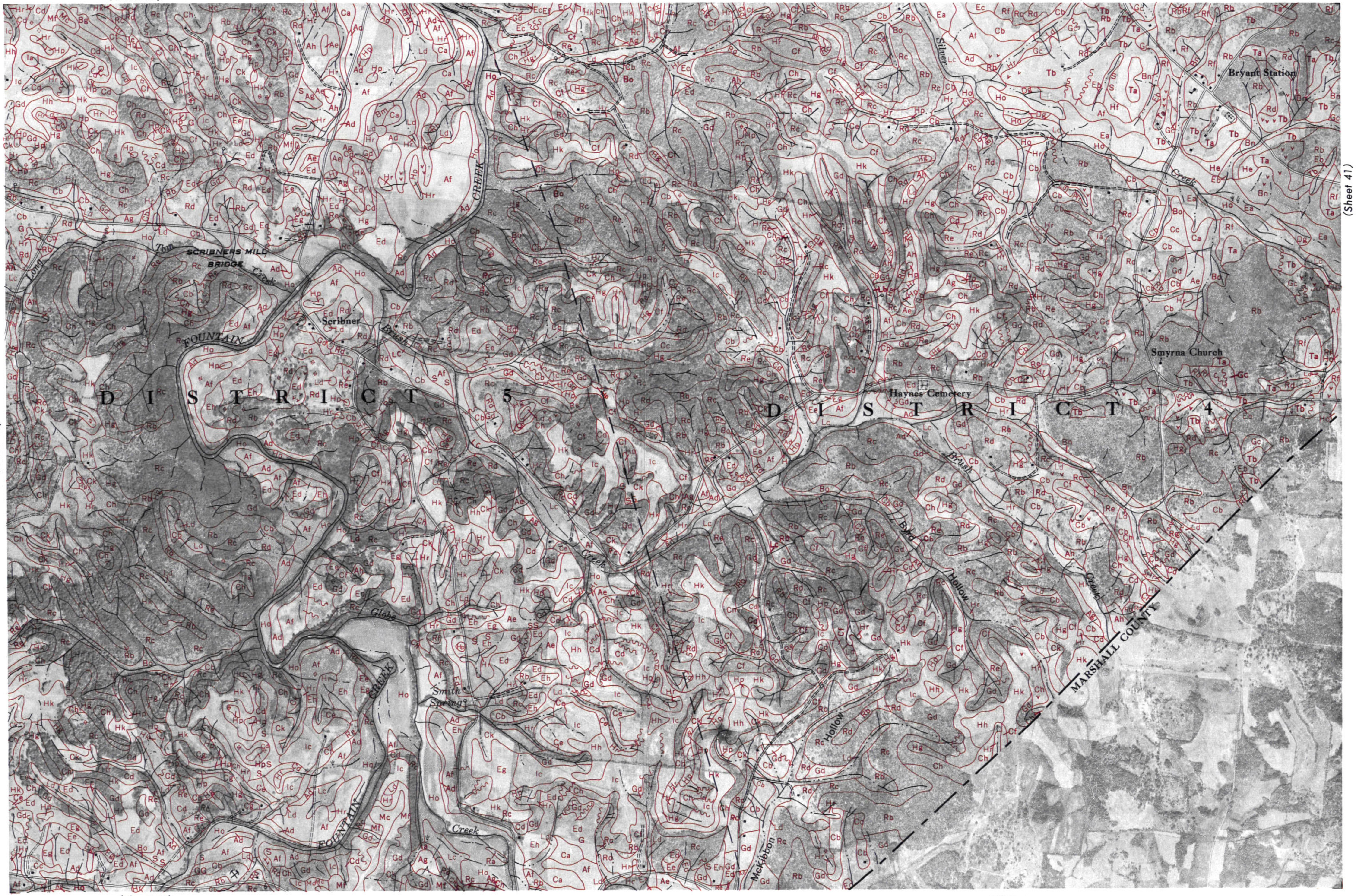
(Sheet 45)



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(Sheet 51)

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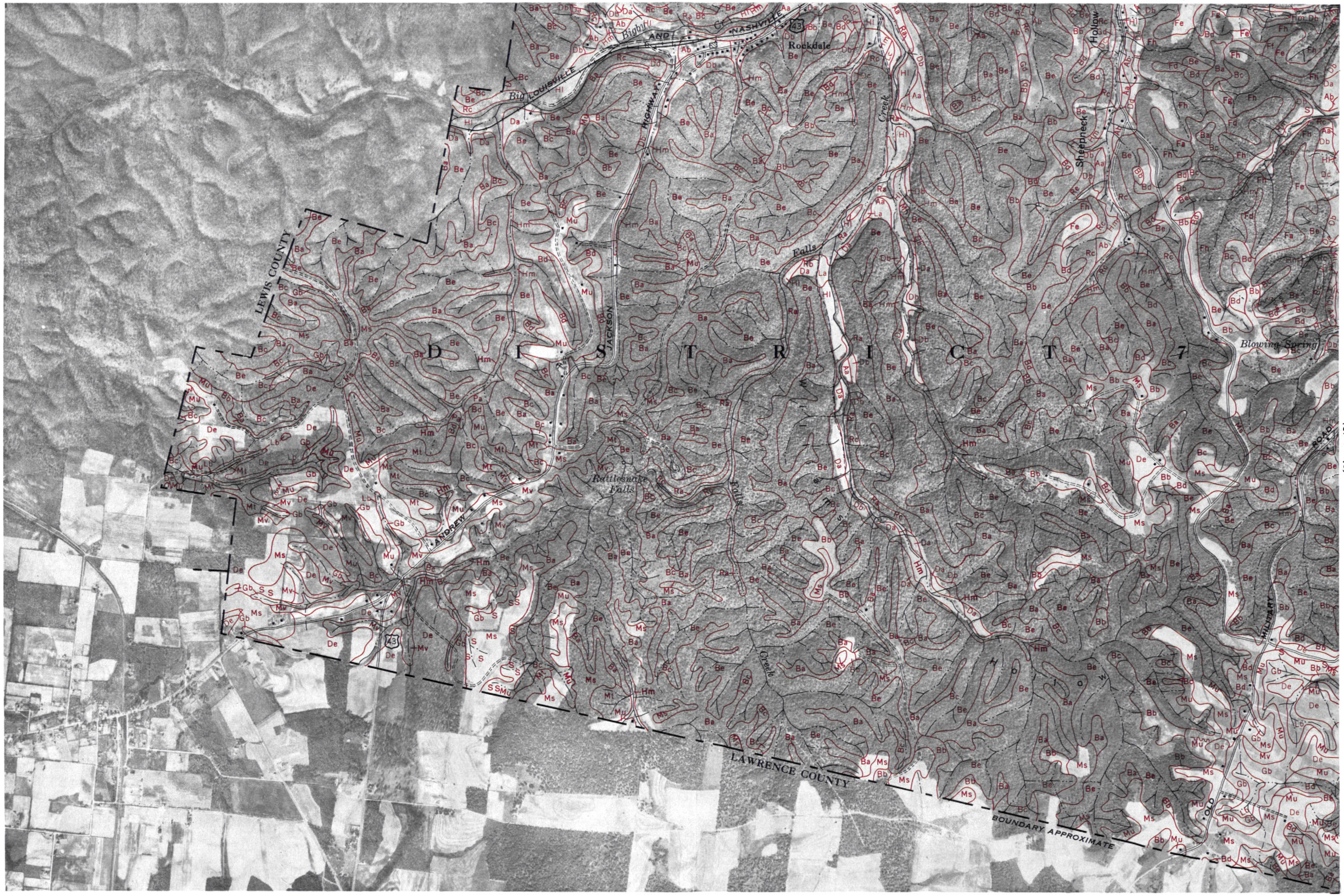

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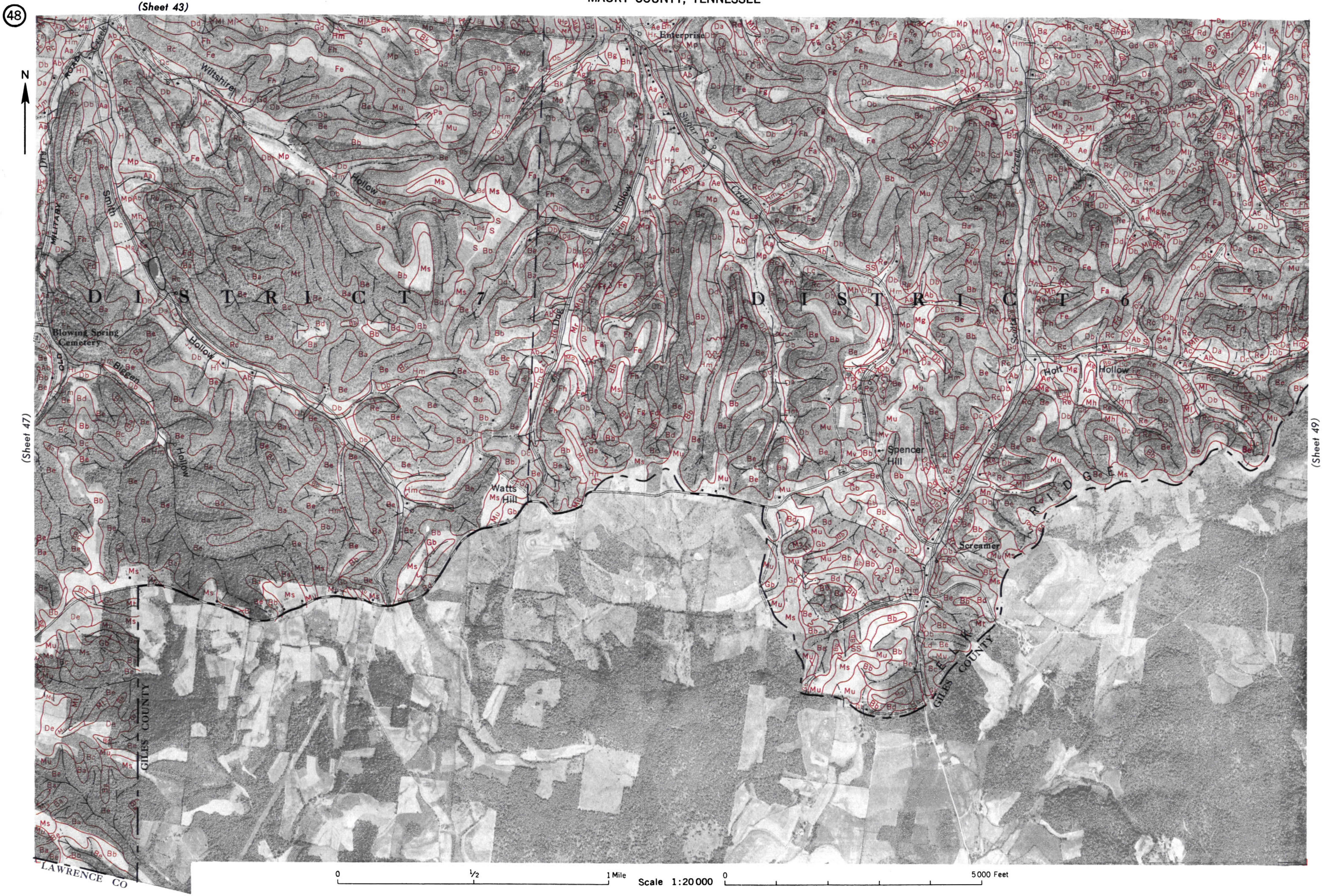
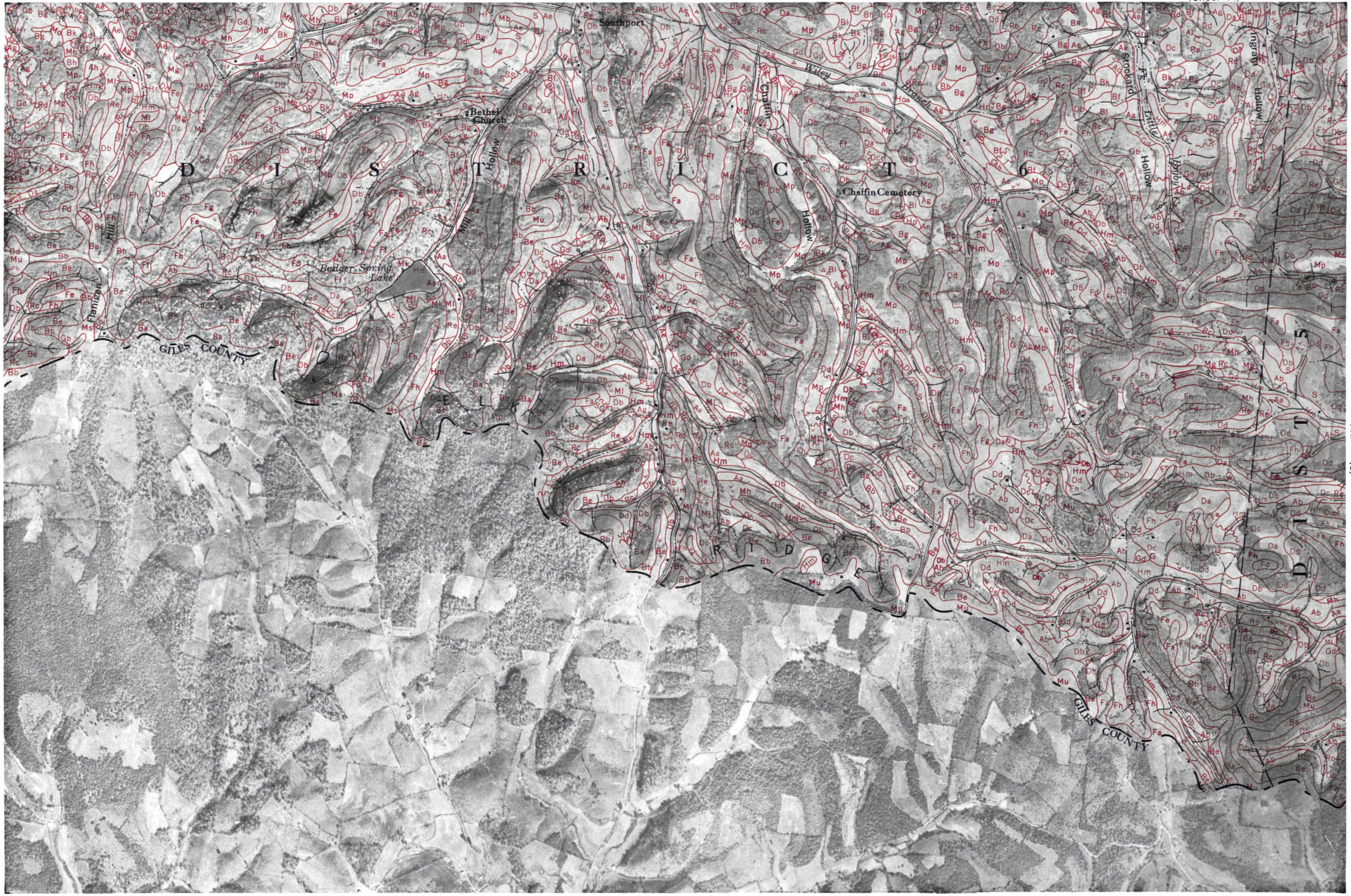

(Sheet 43)
N
Enterprise
Sugar Creek
Wiltshire
Hollow
Smith
Dog Hollow
Scotts Creek
D I S T R I C T 7
D I S T R I C T 6
Blowing Spring Cemetery
Biggen Hollow
Holt Hollow
Spencer Hill
Watts Hill
Screamer
ELK RIDGE
GILES COUNTY
LAWRENCE CO
(Sheet 47)
(Sheet 49)
0
1/2
1 Mile
Scale 1:20 000
0
5 000 Feet

(Sheet 44)

(Sheet 48)



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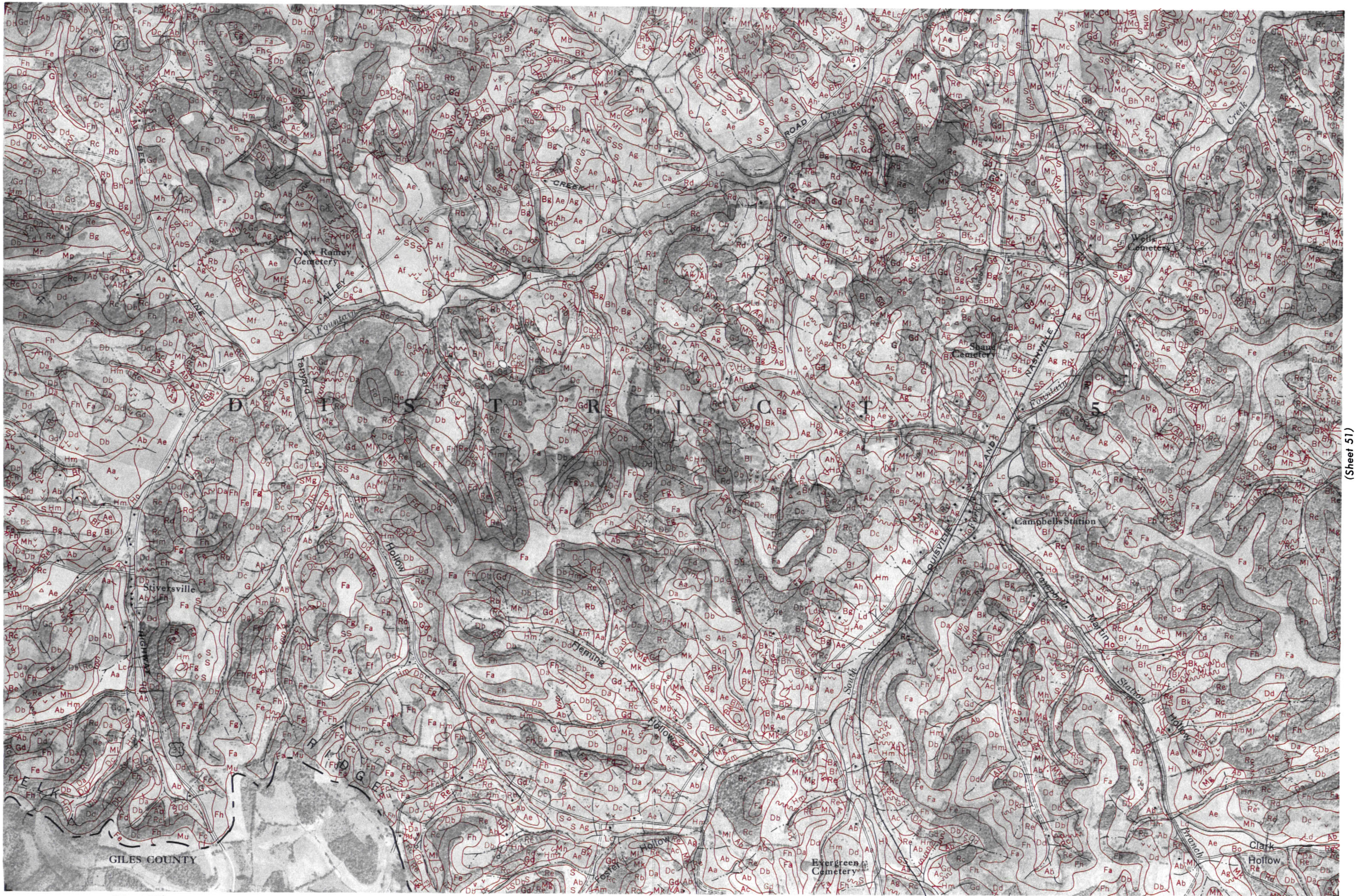

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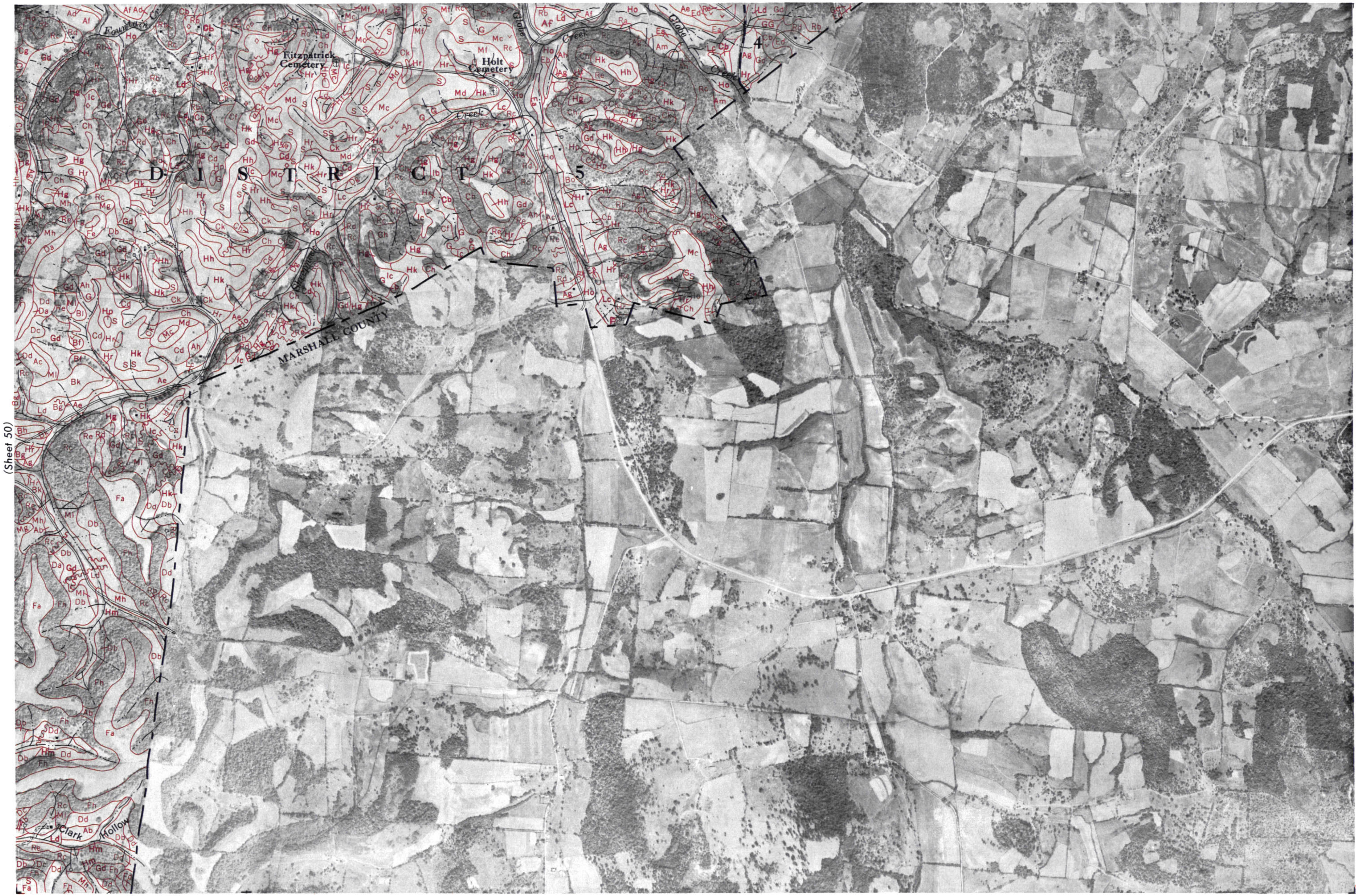

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MAURY COUNTY, TENNESSEE

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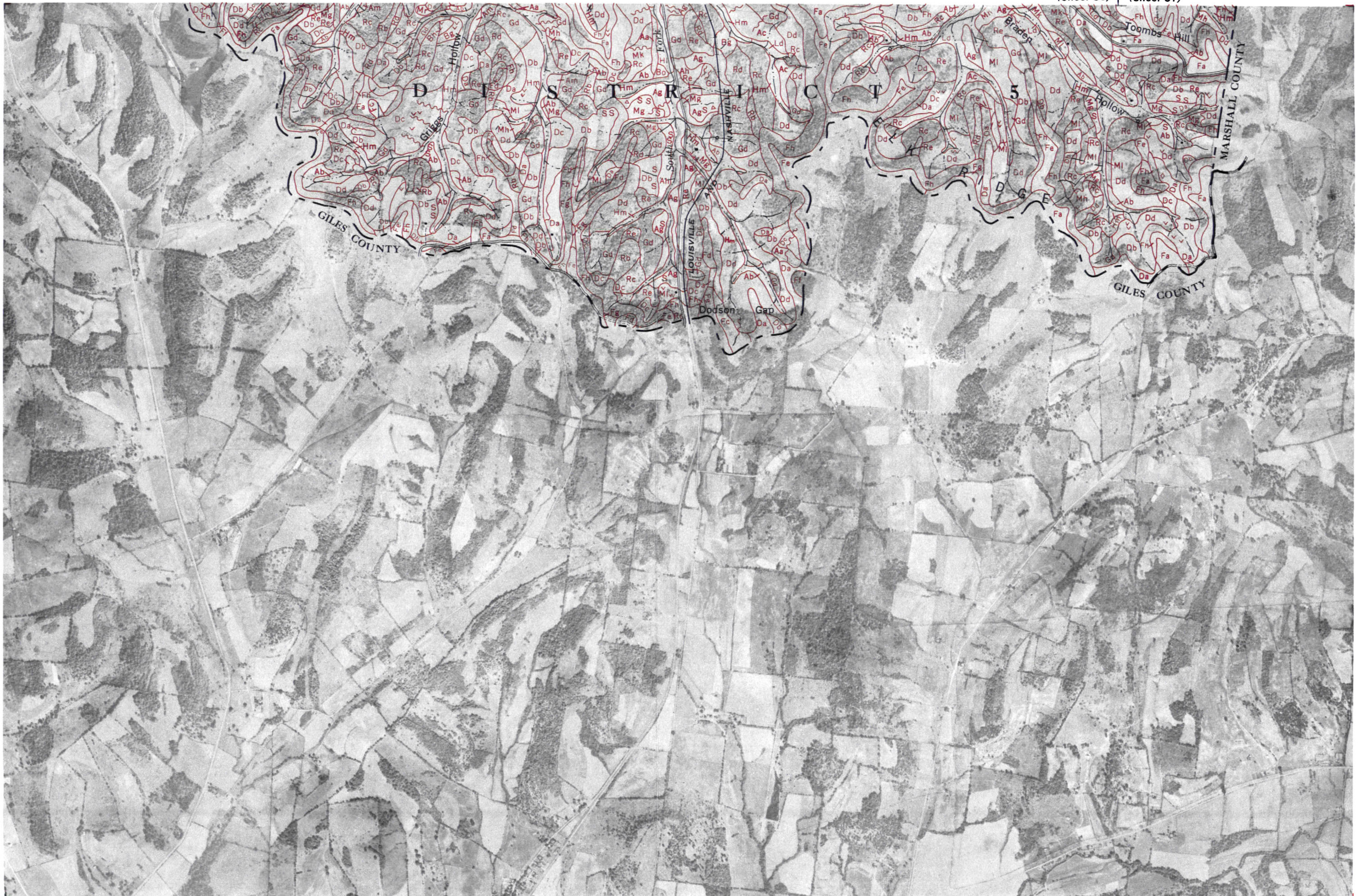

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

SOIL ASSOCIATION MAP
MAURY COUNTY, TENNESSEE

LEGEND

1 MOUNTVIEW - DICKSON

2 BODINE - MOUNTVIEW (SHALLOW PHASES) - PACE

3 DELLROSE - FRANKSTOWN - MIMOSA (CHERTY)

4 BRAXTON - MAURY - ARMOUR

5 INMAN - CULLEOKA - HICKS - MAURY (COARSE PHASES)

6 TALBOTT - HAGERSTOWN - ROCKLAND

7 ROCKLAND - TALBOTT - HAGERSTOWN (ROCKY)

8 ETOWAH - HUNTINGTON (LOCAL ALLUVIUM PHOSPHATIC PHASES) - EMORY

9 HUNTINGTON - LINDSIDE - ARMOUR (TERRACE PHASES) - EGAM

MAURY COUNTY, TENNESSEE
CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Roads
- Good motor
- Poor motor
- Trail
- Marker, U. S. — 33

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferry
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mine and Quarry
- Shaft
- Dump
- Prospect

Pits, gravel or other

Power line

Pipeline

Cemetery

Dam

Levee

Tank

Oil well

Windmill

Canal lock (point upstream)

Sawmill

BOUNDARIES

National or state

County

Township, civil

- U. S.

Section

City (corporate)

Reservation

Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass.
  - Crossable with tillage implements
  - Not crossable with tillage implements

Canals and ditches — CANAL, DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells — flowing

Springs

Marsh

Wet spot

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions (Large, Small)
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

Soil type outline and symbol — Dx

Gravel

Stones

Rock outcrops

Chert fragments

Clay spot

Sand spot

Gumbo or scabby spot

Made land

Erosion
- Uneroded spot — U
- Sheet, moderate — S
- Sheet, severe — SS
- Gully, moderate — G
- Gully, severe — GG
- Sheet and gully, moderate — SG
- Wind, moderate
- Wind, severe
- Blowout
- Wind hummock
- Overblown soil

Gullies

Areas of alkali and salts
- Strong — A
- Moderate — M
- Slight — S
- Free of toxic effect — F
- Sample location — 26
- Saline spot